California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

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VOL. X JULY, 1912. No. 7

EDITORIAL NOTES.

IMPORTANT NOTICES!

Last month, and in this issue, and in subsequent issues, important notices and announcements relating to affairs of the Society, will be found in the advertising pages. Our advertising space is worth money; worth a good deal of money to our advertisers; a lot of them write us nice letters telling us what they think of it; more than one has stated it to be his opinion that advertising in your JOURNAL has made his business. If it is valuable space for other people it is valuable space for the JOURNAL and for the Society and so we are going to use it for promoting our own interests as well as other people's. The office of the Society and of the JOURNAL is a *business* office; incidentally it may be said that a whole lot of business goes through the office every year and the volume is increasing tremendously. But get the point; *it's a business office.* Here the *business* side of your work is looked after; the activities of the medical men of the entire state center. If you want to keep up with the important suggestions, changes, improvements, etc., that are coming along, *look for them in the business part of your* JOURNAL; in the advertising pages. And it will pay you well for the trouble of looking.

SUGGESTIONS TO AUTHORS.

A pamphlet with this title is issued by the American Medical Association and will be sent to any one for the small sum of twenty-five cents. Every going-to-be author should provide himself with this pamphlet and read it carefully before writing his article. Many authors seem to resent the rejection of their manuscript when they really ought to apologize to the editor for sending him such slovenly or possibly illiterate work. If the following rules and suggestions were followed, fewer manuscripts would be rejected, a good article will be greatly increased in value, time will be saved, the editor will be able to keep his temper and the compositor may be saved from a drunkard's grave:

Manuscripts *must* be typewritten to receive any consideration; they *should* be well spaced between the lines and with ample margins.

A carbon copy should not be submitted; the original is none too good, as a rule, and the carbon copy shows at once that another and better copy exists. If the author desires to keep a copy, he should keep the carbon copy.

Ingenuity is praiseworthy in almost anything except spelling. Dictionaries are cheap; the author should carefully correct his manuscript before sending it in. An aimless ingenuity in variegated spelling is calculated to drive nearly any "copy reader" crazy.

Exclusive publication is the rule of nearly every journal so far as known. To send the same article to two or more journals is cheating.

Do not write at all unless you have something to say and then say it as briefly as possible and stop.

Number the pages of your manuscript consecutively from first to last, and do not put slips of odd sizes in between sheets so that they can fall out, get misplaced or in some other way give you a chance to kick at the printer for your own carelessness.

Case reports are, as a rule, maddening. They may possibly be intelligible to the author, but from the way he generally writes them up even this is to be doubted. A case report should be as carefully written as any other portion of the article; and it should contain no unnecessary matter. Do not include negative findings; what is not stated to be abnormal is assumed to be normal.

Quotations are another source of anguish. A majority of authors will put quotation marks at the beginning of the quoted matter—and then carefully forget to put them at the end!

A "case" is a condition or instance of disease; a patient is a human being. One may operate upon a patient but not upon a case; the patient dies or recovers; not the case.

Illustrations are seldom necessary to elucidate the text of a properly written article. When they are necessary, they should be in the form of black and white drawings on a stiff paper, or clear, clean photographs on a glazed paper. Each should be numbered and have the name of the author on the back.

Never roll a manuscript; send it flat or folded. Never roll or fold photographs; send them flat.

A NEW GOLD BRICK PLANT.

Two very enterprising gentlemen have started a new "Medical College and Post Graduate School" in Los Angeles. (One's first thought is "poor Los Angeles!") The President of the institution, according to their letterhead, is Frank P. Young, a graduate of the Kentucky School of Medicine in 1893, licensed in this state in 1909, and the Secretary is C. P. Drumm, a graduate of the Pacific College of Osteopathy 1902, licensed 1907. In a letter to an unlicensed physician in San Francisco, occurs the following interesting paragraph which explains the whole game:

> "One of the objects in establishing the school is to have an institution where osteopathic physicians may enter and receive credit for the time and work they have put in at recognized osteopathic colleges. In other words, students who have had a three years' course in an osteopathic school will only be required to attend one school year at the Pacific Medical College and Post Graduate School, to receive the degree of Doctor of Medicine."

And there you are! The diploma mill working again. The law of this state would not recognize such a degree or the work done in such a school; but that information is, probably, *not* given to those who may wish to take advantage of this worthy institution. Any osteopath who accepted their proposition with the intention of applying for a license to practice medicine in this state, would simply be buncoed out of his money. Again we must say "poor Los Angeles!" for here is another one; this time it is a letter from the "Mazdaznan University, Los Angeles Section," and is signed W. H. Riley, "Food Scientist."

> "We are teaching a system of dietetics that has produced marvelous results and should like to tell you more about it, as we are positive our methods are destined to supplant all systems of medication."

CATCHING SUCKERS.

The sucker is a fish of the carp family; his diet is not elegant, to say the least; he is by means of being a sort of parasite, also. In a few of his characteristics some of our best "nostrum" makers and their friends are not unlike the sucker; and also like the sucker, they are easily caught. Just say something unpleasant about them and then scrutinize the "friends" that, of course with the purest of impersonal motives, rush to their defense and support! "Smith" says that ergoapiol does not advertise in newspapers and that it is intended exclusively for physicians' prescriptions. On the first count they may be true though our informant was quite sure he had seen the "ad" in some lay publication. On the second count we would only call the attention of any physician who prescribes ergoapiol in the original package to the circulars therein contained. One refers to ergoapiol itself and discussing amenorrhea says: "If the flow is absent or insufficient in quantity because of constitutional disturbances, the preparation will afford relief by restoring vitality and functional activity to the entire reproductive system." The other circular refers in the highest terms to glycoheroin (Smith) in "coughs, bronchitis, phthisis, asthma, pneumonia and whooping-cough." Every original package sold may possibly help the layman (or woman) along the cemetery road of self-medication (or abortion). Yet the nostrum people and their "friends" say that the rules of the Council on Pharmacy and Chemistry are absurd. Can it be because these rules do not permit this sort of advertising to the lay public? And yet these things are intended "exclusively for physicians' prescriptions"!

TRUTH OR LIES.

Some insurance companies selling medical defense policies have written to our members telling them that medical defense by the State Society is worthless, or nearly so, and that their own attorneys were the only ones that know all about the law. As against these carefully worded, malicious, lying letters, it is not unbecoming to place the following letter from a member of the Society who was recently sued for alleged malpractice and successfully defended. The "two other attorneys" were retained by this physician before he remembered that he was entitled to defense by the State Society. For obvious reasons the names are not mentioned:

> "In commendation of the work done for me and for the Society by your representative, Mr. ———, in the case of Blank vs. Blank, I must assure you that Mr. ——— exhibited untiring energy and superior ability, and while I had employed two other attorneys, Mr. ——— was the general and did practically all the work in the court room."

Remember that this medical defense by the State Society is merely co-operative protection against blackmail; the members of the Society are helping to protect each other. No member knows when he himself may be the defendant in an action of this sort. Therefore, see that you keep your dues paid up; and, also, see that you help your fellow member. If he is sued and needs your expert testimony, give it and give it cheerfully; some day you may need him to do the same thing for you. Do not look upon the giving of expert testimony for the Society as something for which you should be paid. You are not doing it for a rich corporation but for yourself; you are helping to protect yourself against blackmail—for that is what 99 out of 100 malpractice suits really are; attempts at blackmail. A number of the suits we have successfully defended have been brought by people who wanted to get out of paying their physician. He sued for his bill and they sued for malpractice; we won the suits; the Society defended the member and won out. It is time the good old game of "bilking the doctor" was stopped, and that is just what the Society is doing; stopping it; making it possible for the physician to sue for

his just bill without being afraid of a cross-complaint in which the patient alleges malpractice. Do insurance companies do that? Ask Dr. Magee, of San Diego. Is it worth while to remember to keep your dues paid up and be at all times in good standing? Ask Dr. Mercer, of Eureka. If we just stick together and help each other, this game of "bilking the doctor" will be forgotten, in California.

THE BARANY SYMPTOM COMPLEX.

Three years ago, the name of Barany was known only to a few otologists, who were familiar with the work being done in the Politizer ear clinic. To-day every neurologist and "internist" is making himself familiar with the work of this remarkable investigator. Starting with a study of the nystagmus produced by an irritation of the vestibular apparatus of the ear, brought about by the injection of cold water into the external canal, various functions of the cerebellum have been studied, until now more is known about the kinesthetic senses, and their importance in the diagnosis of cerebellar tumors, than the entire previous decade had brought out. His latest contribution to this subject is the discovery of a symptom complex based on the tests which he has published in the twenty odd papers standing to his credit since 1906. Briefly stated, a collection of fluid in the cisterna pontis of the cerebellar pontine angle, can give rise to the following complex of symptoms, when occurring in a fully developed case on the right side. 1. Headache in the right posterior cranial fossa. 2. Tenderness in the right mastoid. 3. Attacks of dizziness. 4. Lowered caloric reaction. 5. Right sided deafness of the nervous type. 6. Right sided tinnitus. 7. With the palm downward, spontaneous "pointing-bye" sign to the right. 8. Failure of the pointing reaction to the left with an artificially produced nystagmus to the right. 9. Lowered pulse rate. 10. Decreased corneal reflex. In Barany's thirty cases, he was able to show that this circumscribed collection of fluid was brought about principally as an end result of a serous meningitis. The symptom complex can clear up spontaneously or be cured completely by operative means. This paper, presented recently at the German Otological Congress, created as profound an impression, as did his demonstration last year before the British Medical Congress, when by means of his new tests he was able to locate cerebellar tumors, which Sir Victor Horsley subsequently found at operation. In a few years, when these tests have become a part of the routine of every neurological examination, the immense value of his discoveries will be better appreciated.

H. H.

SALVARSAN AGAIN.

In these days when physicians boast of long series of patients who, at their hands, have received one, two, or three injections of 606, it is perhaps not unwise to give a very short résumé of the views of Professor Gaucher of the University of Paris. This syphilographer quotes the remarks recently made at the congress in Rome by Professor Finger of Vienna: "The 606 does not sterilize; relapses occur more frequently after its use than after mercury." This has been Gaucher's teaching for the last 18 months. Gaucher admits that salvarsan is a remarkable cicatrizing agent, healing, with a few exceptions, far more rapidly than does mercury or potassium iodid, syphilitic ulcerations, chancres, mucous patches, etc. With the exception of tertiary lesions thus cured, the above lesions almost invariably recur. It is true that the recurrences are often postponed several months, but this very period of latency adds another element of danger by giving the impression of a cure. Furthermore, the recurrences are at times quite severe. He therefore advises the use of 606 in order to produce a rapid momentary cicatrization of the chancre and mucous patches, and more especially in those cases where mercury is without action, or where it has lost its efficacy after prolonged usage, or where there is intolerance; the latter groups being naturally quite small. Gaucher urges thorough physical examination before the injection, and even then, to use it with fear and trembling, because of harm that may follow, without rhyme or reason, even a very small dose. Even the most enthusiastic Germans now admit the frequent relapses after 606, but, ascribing these occurrences to insufficient dosage, argue that it is wiser not to begin its use in any case unless, if necessity arises, it be possible to administer repeated injections with a total of even three grams of salvarsan! Certainly we in America believe that salvarsan alone is not the *therapia magna sterilisans* it was at first thought to be. With a wave of the hand he casts aside all the elaborate explanations of deaths following 606 and substitutes the words "arsenical intoxication," and even in non-fatal cases he emphasizes the danger to kidney and nervous system. He makes the statement that arseno-benzol has caused more deaths than the syphilis, if left to itself, could have produced. The so-called "neuro-recidiven" he attributes to arsenical poisoning, and not to syphilis (this view being, of course, disputed by the German school and by our best American syphilographers). In view of the fact that cases of lues may remain latent for decades (he cites one case with a latent period of 47 years) he notes the difficulty of pointing to a case as cured, and does not consider a negative Wassermann reaction as evidence in such a matter. In giving this résumé of Gaucher's views, there is no intention of condemning the use of 606. It is hoped, however, that it will stimulate physicians to study their cases carefully before injecting, to select those most apt to benefit and to exclude from such treatment such cases as can be as well treated by mercury and iodid. In this state there certainly have been disastrous results in certain cases; there *must* have been some considering their frequency abroad. Let us hear of these cases and their ultimate outcome. It is only by such reports that we can properly judge the method. Surely we are not

so conceited (or untruthful) as to state that accidents with 606 occur only in Europe; that we in California never allow such things to happen.

R. B.

ON MAKING BOOKS.*

"Intemperantia litteratum laboramus," groans Seneca. "We are suffering from a plague of literature," translates Father Barry. This is a complaint we may echo in our own day. Everybody is writing or threatens to write or is chidden for not writing. But worse than that, everybody is being written about. The market is full of "Who's Who's"—literary, scientific, theatrical, religious, etc., amplifying from year to year so regularly that inclusion in them has ceased to imply distinction, while omission from them will soon come to denote overwhelming modesty or densest obscurity.

Despite Seneca's complaint that his contemporaries wrote too much, posterity feels that it has received too little. We are left in that frame of mind the production of which, the elder Mr. Weller declared, is the great art of letter-writing; we wish there were more of it. Such a void Dr. Kelly seeks by the work before us to spare "medical generations yet unborn." His object is to supply a want which he himself had felt in the course of his biographical labors.

In its compilation he has spent five years. The great value of Professor Kelly's time is a matter of common knowledge and those who are interested in medical biography owe him their gratitude for the zeal with which he has devoted himself to this avocation.

The faults of the book the compiler himself indicates in his preface. The biographies are lacking in uniformity of style and treatment, a lack for which a diversity of excellence would have compensated us. But many of the lives are uninteresting and the data supplied are trivial. It is admitted that in some instances "relatively unimportant men receive a more extended notice than their worthier compeers," but Dr. Kelly had neither time nor inclination to remedy this defect. Among the more than twelve hundred "worthies" included in the Cyclopedia many seem to us of no consequence whatever. Some of them are men "who have done no special original work but who attained great *local* prominence." It is this numerous body of prominent citizens, pointed to with pride and undiscriminating good nature by Americans, and by others pointed at with derision before and since Martin Chuzzlewit, that create the impression that everybody who does not studiously withdraw from observation is likely to be embraced in the capacious biographical literature of to-day. Presumably to his local prominence, one Philip Greth Smith (1810-1879) owes his place in this Cyclopedia; it is recorded of him that "In 1850 he purchased the rights of Lebanon County for 'Coads' Patent Graduated Galvanic Battery,' and thereafter confined his practice almost exclusively to chronic diseases." We hope we do the deceased Smith no wrong if we base upon this statement the suspicion that he was very like a quack. Of course a cyclopedia is not necessarily a roll of honor, and the presence of a name in it does not connote merit, although Dr. Kelly calls his work "a modest Hall of Fame." It is for the murder he committed and not for his scholarship, that Eugene Aram's memory is perpetuated in the encyclopedias. But there must be a limit somewhere to comprehensiveness, for too large a multitude of the unworthy and unimportant obscure our view of those worthier of our attention.

Of practitioners in California we may mention the biographical notices of Levi C. Lane, Elias Samuel Cooper and R. Beverly Cole. The life of Cooper was written by Dr. Emmet Rixford and is an excellent example of what such a sketch should be, for the deeds of the man which illustrate his spirit are most vividly recorded.

The omission of a biography of George Chismore is a defect in this work as reprehensible as many of its inclusions. He was not only "locally prominent," but his skill with the lithotrite and his improvements of that instrument were recognized throughout the nation. In his character there was an association of most attractive and endearing traits, in his career there was variety of scene, there were adventures ashore and afloat, among barbarous tribes and in the great centers of culture; his versatility was exhibited in his skill as a huntsman and in the beauty of his poetry—surely an ideal subject for a most picturesque biography, and one that should be inserted into Dr. Kelly's Cyclopedia if a new edition presents an opportunity for introducing it.

* A Cyclopedia of American Medical Biography, comprising the Lives of Eminent Deceased Physicians and Surgeons from 1610 to 1910. By Howard A. Kelly, M. D. Illustrated with Portraits, 2 vols. W. B. Saunders Company, Philadelphia and London, 1912. $10 net.

REMEMBER!

Protection by the State Medical Society

PROTECTS!

Does An Insurance Policy Really Protect?

THINK IT OVER

ORIGINAL ARTICLES

THE PRESENT STATUS OF NITROUS OXIDE IN MAJOR SURGERY.*

By MARY BOTSFORD, M. D., San Francisco.

The purpose of this paper is to review the present status of nitrous oxide as an anesthetic in general surgery, and the arguments for and against its routine use. Its safety for short periods has been thoroughly demonstrated by the lack of fatalities following its use in hundreds of thousands of cases in dental offices by untrained administrators, with unprepared patients, and with none of the usual restoratives at hand.

The extension of its use to minor surgery, first with the addition of air, and later following the discovery of Andrews of Chicago, that oxygen prevented the asphyxial element, with oxygen, has gradually widened its application, until at the present time it is used extensively in nearly every surgical clinic throughout the country. Many surgeons are using it, with the addition of small amounts of ether, in a majority of their cases, and in the service of Dr. Crile at Lakeside Hospital, Cleveland, it is the routine anesthetic. In the words of Dr. Bevan, who does not favor its routine use: "A surgical clinic that does not find frequent use for nitrous oxide is from the standpoint of anesthesia, a badly conducted clinic." [1]

It does not seem to have met with much favor in Europe, although Dr. Hewitt of London, the leading authority on anesthesia, as early as 1901, ranked it as the safest known anesthetic when administered with a sufficient supply of oxygen to prevent asphyxial complications.[2]

Dr. Bennett of New York, whose record of 27,000 anesthesias entitles his opinion to much weight, in a personal communication stated that after two months' work in Dr. Hewitt's clinic and several hundred private cases, he concludes that the method requires so much skill for safe administration as to preclude its general adoption as a routine anesthetic.

It is being used extensively and with increasing frequency in nearly all the large surgical clinics in New York, Boston and Philadelphia. In Johns Hopkins Hospital, where the rebreathing method advocated by Gatch is used, in over three thousand administrations there have been two fatalities reported.

Dr. Bevan of Chicago, who as a member of the A. M. A. Anesthetic Commission, was among the first to encourage a revival of interest in nitrous oxide, now concludes that it does not produce either as safe or satisfactory an anesthesia as ether in major surgery, except in patients who are bad surgical risks.[3]

The most important work that has been done in investigating the value of nitrous oxide, is that of Dr. G. W. Crile, experimentally in the laboratories of the Western Reserve University, and clinically in the surgical clinic of Lakeside Hospital, Cleveland. Up to the present time nitrous oxide and oxygen, with the addition in a certain proportion of cases of small amounts of ether, has been used in his service in 3300 consecutive cases, of which 2400 have been anesthetized by Miss Hodgings. One death among the very early cases is reported, occurring six hours after operation in a patient with myocarditis and a valvular lesion, constituting an exceptionally bad risk.[4]

In this clinic nitrous oxide is given under the most favorable conditions, such as it would be almost impossible to duplicate in the average surgical clinic, or indeed in any circumstances other than the combination of a surgical team in which operator, assistants, anesthetist and nurse are a constant quantity. In addition the anoci methods of surrounding the patient with what might be called "shock absorbers," tend to increase its effectiveness. A preliminary dose of morphine ⅓ to ¼ of a grain and scopolamin 1/200 to 1/150 of a grain is given one to two hours before operation. In abdominal sections exploration is done with moist gloves; no gauze packing is used; great care is taken not to stimulate peritoneal reflexes; and when not possible to prevent this, all manipulations are suspended until a deeper narcosis has been obtained, by the addition of a small amount of ether which is rapidly vaporized by heat in the apparatus now in use. The adequacy of this light anesthesia is further assisted by the repeated blocking of nerve impulses with injections of novocaine, in the line of the skin incision, in the peritoneum and fascia preliminary to closure, and in the stitch holes of the tension sutures.

The results of nitrous oxide given under these circumstances and by highly trained anesthetists, are naturally more favorable than when given under ordinary conditions. Dr. Crile's statistics of end results of operations give 3% fatalities of all cases and 1% of selected cases, and these results he attributes in large measure to having eliminated the factor of ether intoxication and its results.

Up to the present time it has not been found practicable to use nitrous oxide for operations in the mouth and nose requiring continuous administration. Tonsillectomies are done under it with the use of a nasal inhaler, but the method is not satisfactory for the operator who enucleates and ligates vessels, and is only suitable for operations lasting a few minutes like the Sluder method, in which case the continuous administration is not necessary. The substitution of nitrous oxide for ether in Dr. Elsberg's adaptation of the Meltzer method of intratracheal insufflation has been successfully tried in New York and Boston. This offers a field for investigation as an inspired method of anesthesia in oral surgery.

It may fairly be said that there are no contraindications to the use of nitrous oxide. On account of the liability to cyanosis and venous congestion, if the proportion of oxygen is not sufficient, there is perhaps more risk than with ether for patients with advanced myocarditis, stenosis,

* Read before the Surgical Section of the San Francisco County Medical Society, Feb. 20th, 1912.

dilated right heart, aneurism, arterio-sclerosis, and in brain surgery.

The question of its safety in infants is still debatable, the rapidity of its action and the narrow plane of safety with these patients would seem to indicate danger. In the other extreme of life, old age, it is most satisfactory.

The disadvantages of nitrous oxide as compared with ether are that it produces less muscular relaxation and more venous congestion, its cost is greater, and it necessitates trained anesthetists. With the lighter degree of anesthesia and lessened muscular relaxation, intra-abdominal manipulations excite a greater reflex action. To prevent this condition from arising, or to quickly overcome it when present by the addition of a sufficient quantity of ether, is the chief difficulty in administering this anesthetic. Preliminary doses of morphine or scopolamin help largely in its prevention. The venous congestion may be prevented or reduced to a negligible degree by using a proper percentage of oxygen, an unfailing guide being found in the patient's color.

Its greater cost has been a serious objection to its use in the clinics, but this is being rapidly reduced. It can now be obtained for about one-half the cost of a few years ago, and this may be further reduced at least 50% by the installation of plants for the manufacture of the gas.

The amount of nitrous oxide used per hour varies from 60 to 300 gallons according to the needs of the patient and type of apparatus; and the amount of oxygen from 20 to 40 per cent. The necessity for trained anesthetists is being rapidly supplied, as surgeons everywhere are demanding them even for the administration of the less difficult anesthetics.

The chief advantage of nitrous oxide is its applicability in the cases where ether and chloroform are contraindicated. Patients who are impaired surgical risks, whether from anemia, shock, sepsis, renal, pulmonary or bronchial complications, can take nitrous oxide safely. It lessens the operative risk in diabetics and the most strikingly beneficial results have been obtained by many surgeons who use it exclusively in goitre operations, particularly in the exophthalmic type.

The researches of Hamburger and Ewing have shown that after ether anesthesia the blood coagulates more rapidly and hemoglobin is reduced, with consequent anemia; while nitrous oxide causes a slower coagulation and practically no change in hemoglobin.[6]

Graham has demonstrated that phagocytosis of disease germs, streptococcus, pneumococcus, staphylococcus, colon and typhoid bacillus is inhibited by ether.[6] Theoretically, then, operations in the presence of septic conditions would be safer under nitrous oxide.

It prevents or minimizes shock. In the H. K. Cushing Laboratory of Experimental Medicine, Western Reserve University, Cleveland, various experiments carried out by Dr. M. L. Menten, in association with Dr. Crile, proved that nitrous oxide owes its anesthetic qualities to its ability to prevent the use of oxygen in the circulation.[7] That the brain cells show slight changes from trauma inflicted under nitrous oxide as compared with those under ether in animals, and hence its use minimizes the importance of nerve blocking in the operative field.[8]

Quoting Dr. Crile on this subject: "On the theory that nitrous oxide owes its anesthetic property to its power of limiting oxidation in the brain tissue, and the theory that shock is due to an exhausting activity of the brain cells due to injury, one might very properly infer that the brain cells were by nitrous oxide prevented from making the harmful expenditure of energy, thus minimizing the shock." [9]

The marked decrease in post anesthetic nausea and vomiting is not the least of the advantages of nitrous oxide.

Miss Hodgings' observations of 1,000 cases showed nausea in 10% lasting only a few hours in all but three, two of which had been gall-bladder operations. These results are verified by the experience of all who have used this anesthetic.

The comfort of the patient, the early ability to take and retain nourishment, must count largely in shortening convalescence.

An experience during the past ten years of approximately 9,000 nitrous oxide administrations—at first as a preliminary to etherization, then for short operations such as opening abscesses, reduction of fractures, paracentesis, adenectomies, etc.—later with the addition of air for minor surgery, and finally combined with oxygen for major surgery, in almost every variety of operative procedure, lasting in one case over three hours; its application in many unusual cases such as intrathoracic surgery; through a trachotomy wound where respiration was impeded by constant discharge of pus from a gangrenous lung; in a cataract operation on a seventy-five-year old patient; through a nasal inhaler for an antrum operation lasting thirty-four minutes—in all of these cases without the addition of ether, the remarkable lack of after effects especially in patients who are bad surgical risks, the absence of post anesthetic discomfort to the patient, the general verdict of the operators that recovery is more rapid and complications fewer, have convinced me of the great value of nitrous oxide and its wide field of usefulness.

There have not yet been collected sufficient reports of the use of nitrous oxide in major surgery to establish its safety as compared with ether; and as the final criterion of any anesthetic is safety, its future place must depend on the collected reports of many observers.

There are two types of apparatus for the administration of gas and oxygen; one represented by the Gatch modification of the Bennett, consisting of a face mask connected with a rubber bag which is filled with nitrous oxide, oxygen added in varying proportions as indicated by the needs of the patient and the supply valve closed. The contents of the bag is then rebreathed until the necessity for a fresh supply is indicated, this period varying from a few minutes to as long as 20 min-

utes. Yandell Henderson's[10] conclusions as to the respiratory stimulation of carbon dioxide and the explanation of deaths from cardiac failure due to apnea from excessive ventilation of the lungs, justifies this method, as does also the closed gas-ether sequence of Dr. Bennett.

The other type such as the Teter and the Monovalve are constructed on the same principle except that there is a constant flow of the gases in a definite proportion and less rebreathing. The Monovalve has the advantage of a finer adjustment of pressure, the substitution of electric heating for alcohol, and the evaporation of ether by dropping on a heated surface, thus enabling the anesthetist to increase the depth of narcosis very quickly.

The objection to complicated apparatus must in this case give way to the necessity of having a mixture of gases delivered under a definite pressure through an air excluding mask. It is at best a difficult anesthetic to administer and correct apparatus is absolutely necessary.

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THE CHOICE OF AN ANESTHETIC.*

By CAROLINE B. PALMER, M. D., San Francisco.

I am somewhat painfully aware of my rashness in attempting to speak on a question which has caused such frequent controversy as the choice of anesthetics. In reading the literature, and in listening to discussions on this subject, one is unavoidably struck by the partisan spirit frequently displayed. It is sometimes more as if politics or religion were being considered than a question of therapeutics.

Fortunately in the past few years much valuable experimental work has been done, giving us something more definite as a guide than the simple opinions which are expressed with such amazing frequency. These experiments seem to have proved beyond reasonable doubt that the three most commonly used anesthetics, viz: nitrous oxide with oxygen, ether and chloroform, rank in toxicity, in immediate danger, and in dangerous after effects in the order named. That is, nitrous oxide with oxygen, properly administered, is remarkably free from danger during anesthesia, and that it causes no after effects of any significance: that ether may cause death either from failure of respiration or even primary heart failure at time of anesthesia, but that in ordinary cases the danger is slight, except when the administration is extremely faulty: that it causes slight anemia, marked decrease of coagulation time of the blood, marked decrease in phagocytic power and may be followed by lung and kidney complications, and probably in certain cases by acidosis: that chloroform is more dangerous to administer, as it occasionally proves fatal even in the hands of careful and expert anesthetists and when given under the most favorable conditions as to preparation of the patient, posture during anesthesia, etc. In Hewitt's work on anesthetics he reports, in a summary of over 1,000,000 anesthesias, immediate death from chloroform as one in 3000, and from ether as one in 16,000 administrations. It is held by the best authorities that in giving chloroform, a vapor strength of more than 2% is not justifiable, and in practice it is difficult to estimate this per cent. accurately. When an apparatus is used controlling the administration so that no more than 2% can be given, it is sometimes difficult to induce anesthesia.

The after effects are quite as numerous and more serious than those following ether. It produces hemolysis, distinct anemia, marked decrease of phagocytic power, marked decrease of coagulation time, and the condition known as late chloroform poisoning adds materially to the mortality after the use of this anesthetic.

Excluding nitrous oxide and oxygen, as that is the subject of a separate paper this evening, the choice of anesthetics from the standpoint of safety seems to be overwhelmingly in favor of ether and, as a matter of fact, ether is the routine anesthetic in most of the larger hospitals in our country. It is in small hospitals, in offices and in emergency cases that chloroform is most frequently given in the United States, and this is doubtless one of the reasons for the relatively high mortality attending its use, as, under such circumstances, the same care is not always exercised as to preparation of the patient, posture during anesthesia, and skill of administration as is becoming routine in most of our hospitals.

PREPARATION.

The question of preparation has a most important bearing upon the choice of anesthetics. If, for any reason, a patient who has not had the usual preparation must be anesthetized, the choice of anesthetic, from the standpoint of safety, should be nitrous oxide and oxygen. In case this is not available, or should greater relaxation be required, ether becomes the second choice, but in the light of statistics it would seem that no one would care to take the added risk of using chloroform under such circumstances.

POSTURE.

The posture required for a given operation is sometimes the controlling factor in the choice of anesthetic. A semi-upright posture is practically free from danger when nitrous oxide is used. It is usually not attended by any serious danger when ether is the anesthetic, but, as far as I know, all competent authorities condemn it for the administration of chloroform, and yet we still have fatalities in dental chairs from chloroform, frequently administered by graduates of medicine. The following is a quotation from an article by a dentist, published in the *American Medical Association Journal:* "The record of deaths in dental chairs

* Read before the Surgical Section of the San Francisco County Medical Society, Feb. 20th, 1912.

from chloroform is so appalling that one would think no intelligent dental surgeon would permit this agent to be used in his office, even though a physician should recommend it and assume the responsibility." The implication here is rather hard on physicians, but I am afraid that we cannot consider it very unjust. Francis R. Packard reports a list of deaths from anesthesia in tonsil and adenoid operations. Of 29 deaths, 26 were attributed to chloroform, 2 to ethyl chlorid, and 1 to A. C. E. mixture. The question of posture doubtless was a factor in many of these cases. He does not mention any deaths from ether for this operation, but numbers have been reported from various sources. Quoting from an article in a recent number of the *A. M. A. Journal*—"It has been generally believed that the presence of the so-called status lymphaticus was the cause of the rather unusually large proportion of cases of death during anesthesia, which occurred in the course of operations for the removal of tonsils and adenoids. Henderson explains these deaths by saying that they are due, not to status lymphaticus, but to the acapnia which accompanies the deep respiratory efforts incidental to the intermittency in anesthesia, which often prevails in these cases, to too light anesthesia at the start and to nervousness preceding."

The choice of anesthetic for infants is still influenced to an extent by the old time opinion that chloroform is safe for children, whatever may be said of it for adults. I have searched diligently for justification for this belief but without avail. Infants take chloroform readily and that is, I believe, all that can be said in its favor. Why, when its poisonous effects upon adults, upon dogs, cats, rabbits, etc., are so freely admitted, should the human infant be thought to be immune! In my own experience I have never given chloroform to a very young child, that I have not been satisfied it would have been better under ether. This is the only subject in the whole field of anesthesia in which I plead guilty to the partisan spirit before mentioned.

ANESTHETIC SEQUENCES.

Much has been said recently for and against the various anesthetic sequences. The nitrous oxide-ether sequence has been condemned by certain authorities on the ground that the "oxygen starvation and carbon dioxide poisoning so induced cannot but be harmful." As the nitrous oxide is usually given for only about one minute preceding the ether, it is difficult to believe that there are sufficient grounds for such a statement. On a basis of 14,000 administrations in three hospitals in San Francisco, the advantages seem very great, and, in comparison with those cases in which ether alone has been used, are as follows: The induction period is reduced by about one-half: anesthesia is induced with a minimum of discomfort to the patient: the so-called stage of excitement is but little in evidence, and the amount of ether required is somewhat decreased. As the stage of excitement is admitted by all authorities to be the period of greatest danger to life from any anesthetic, this alone would seem to be sufficient reason for the routine use of nitrous oxide as preliminary to ether.

The use of chloroform as an introduction to ether is a different story, for, while it possesses to quite an extent the advantages of nitrous oxide, when so used, it has the great disadvantage of being especially dangerous to life during the induction period, while nitrous oxide is remarkable for its freedom from danger.

MEDICATION PRECEDING ANESTHESIA.

The use of a hypodermic injection of morphine and atropine is recommended by competent authorities, and condemned by equally competent authorities. The objections urged are, that as one drug may augment the action of another, an overdose is more easily administered: that in case of accident there is not only the anesthetic to be eliminated, but the more permanent drugs as well: that the pupillary reaction is masked: that morphine allays the reflex excitability of the upper air passages, retards coughing, therefore favoring the retention of secretions or vomitus in the trachea so predisposing to pneumonia, and that morphine causes nausea in some patients. The advantages mentioned are: That the patient comes to the anesthetic room in a more quiet frame of mind, fear being decreased or absent, and with it one of the greatest factors in producing shock: that the secretions are decreased, rendering the air passages comparatively free, therefore reducing the dangers of pneumonia: atropine prevents reflex stimuli coming through the superior laryngeal nerve or its branches from causing a sudden inhibitory stoppage of the heart, and is a vasomotor stimulant: less anesthetic required, and in most cases both morphine and atropine tend to reduce nausea. Comparing these reasons for and against the use of a preliminary hypodermic injection in the light of 5000 administrations of ether in my own experience, in which a carefully regulated dose of morphine and atropine has been given in practically all cases, except children under five years and the very aged, the advantages seem to more than offset the disadvantages. All of the objections urged, however, may become very real if an overdose has been administered, and, for this reason, and because the use of the hypodermic is a part of the anesthetic, I believe that when used the exact dose should be indicated by the anesthetist.

WARMING OF ETHER VAPOR.

The warming of ether vapor has received considerable attention of late, and seems to be valuable. The possibility suggests itself that one reason for our better results under the drop method of giving ether over the old cone method may be that the smaller air and vapor space allows a certain amount of warming of the vapor, and that this with the continuous instead of intermittent administration, as by the cone method, may be the real advantage instead of the much talked of increase in the amount of air. It seems quite possible that there may not be such an increase in

the amount of air as some of us have thought, for certainly most anesthetists keep the gauze or small inhaler at least partly covered much of the time, and the result of experiments upon the value of a certain amount of rebreathing indicate that this is rather an advantage than the reverse.

For some time I have been experimenting with the warming of ether vapor, especially in operations on the face and throat where an inhaler cannot be used and the ether vapor is given through a tube, and I wish to show you a home-made apparatus which I am now using for that purpose. I do not claim anything original in this apparatus. It consists essentially of the bottle in which ether is vaporized and a cylinder of compressed air to obviate the necessity of using a hand or foot bellows. From this bottle the vapor is passed through a second one which contains warm water, and in its passage through this it becomes sufficiently warmed. The second cylinder is oxygen and is not a necessary part of the apparatus but simply a matter of convenience for use in cases where the addition of a little oxygen is indicated.

MISHAPS IN TREATMENT.

By DOUGLASS W. MONTGOMERY, M. D., San Francisco.

The therapeutic art is one acquired through long and painful experience, and can by no means be learned off-hand from books. The value of books in learning it is, however, indispensable, but statements in them must be compared with actual experience in order to make the knowledge fruitful.

Medicaments do not alone act differently in different individuals, but they act differently at different times in the same individual. A remedy that during the height of an eczema, where soothing applications are indicated, might be too weak, might be altogether too strong to use on a chronic eczema, where strong stimulating applications are needed. In addition to this there is the relative sensitiveness of the different regions of the cutaneous surface. Nowhere is this principle of fitting the remedy to the case so well seen as in inflammatory affections of the lower third of the leg in those whose circulation is none of the best. An indolent eczema in this situation that appears to need stimulation may be stirred up to destructive ulcerating activity if stimulating remedies are applied. The scrotum is another locality so sensitive that strong remedies may act on it in a highly disagreeable manner.

One evening I was called to see a young druggist, who, having a slight attack of poison oak, conceived the idea of treating himself. On looking into the matter he found menthol recommended as a good remedy for itching, and itchiness of the scrotum was exactly what he was suffering from. He thereupon made himself a fairly strong menthol preparation, which, on being applied burned atrociously. Now his chemical knowledge came to his aid, as he knew chloroform to be a fine solvent for menthol, and what better means could be devised for removing the tormenting stuff than to douse the scrotum with it. This was indeed liquid fire, and in itself would have constituted a very painful momentary experience, but unfortunately the menthol was already there to lend persistency to the torment. As is its nature the scrotum shrivelled up with the pain, and retained the menthol in the depths of its folds. All efforts to get the drug out or to wash it off only made matters worse. The patient grew frantic and hastened home. His pain accompanied him, however, and when I reached him his neurons were dancing with hysteria, with pain and with exquisite distress. Among other afflictions he had become persuaded he would lose his scrotum and testicles. While getting his story I really was busy turning over in my mind how to meet the therapeutic indications. It, of course, was of no use to try to wash or to wipe off the menthol. The contracted scrotum, as hard and rugose as a peach stone, would not permit of it. Happily I thought of bland heat, and ordered a starch poultice. The gentle heat would cause the muscles in the scrotum to relax, and the starch would soak up and dilute the menthol. I therefore ordered some hot water, which I poured on ordinary laundry starch to make a paste, and applied it. In a few moments the blessings of peace descended on that household.

The late Dr. W. E. Taylor used to say that the doctor who would apply either tincture of iodine or chloform to the scrotum ought to be crucified. Such applications are made, however, and I myself was once guilty.

At the opening of my career and while house surgeon in Chambers St. Hospital in New York, I was called to see a man suffering from gonorrheic epididymitis. As a bartender he had to stand all day, and so suffered both from the weight and from the tenderness of the diseased organ. To relieve him I decided to prescribe a liniment to apply on flannel, and to wear in a suspensory bandage. The liniment ordered was found in one of those students' manuals that contain so much concentrated, undigested knowledge, and consisted of equal parts of chloroform, tincture of belladonna, tincture of aconite and glycerine. The preparation was excellent in itself, but was accompanied by little or no explanation of its properties or uses. The man got the liniment and the piece of flannel. I can see him yet as he applied the medicament. The scene lay in a rather large, sparely furnished room up on the West side in New York. The patient was seated well forward in his chair so as to suspend the affected member, and allow him the more readily to apply the flannel soaked with the liniment, and he had the intent, preoccupied look incident to such occupations. The moment the application touched the scrotum he gave a roar, and if he did not reach the opposite corner of the room in one jump, he did in two. Tertullian thought that after death we shall travel from star to star; Victor Hugo in commenting on this said we shall then be stellar grasshoppers. My patient made an excellent initiatory attempt in preparing for the celestial job. While jumping about he emitted such a stimulating collation of vowels and consonants as I have rarely had served up before me. In

his eloquence, however, he used only words found in the Bible, although the syntax was different.

Well, I thought it not a question of what I was going to do for him, but what he was going to do with me. But I managed to retain my professional attitude, and set about to soothe his pain in every way I possibly could, and I think retired with his gratitude. Patients are a long suffering generation, and rarely hold grudges for the pain caused them. I suppose the reason is that it is so frequently necessary to inflict it, that it comes to be looked on as a matter of course.

Not long ago I had another instance in this kind. A patient applied for advice with one of those lichens that constitute the delight of the dermatologist. The lesions on the arm were light red, covered with a branny desquamation, and could not be distinguished from a seborrheide, except for the deep staining left after their involution. A few patches on the inner surface of the thighs showed some fairly characteristic papules, and there were no lesions whatever in the mouth. The papules on the scrotum and on the glans penis were, however, beautifully marked, especially those on the scrotum, where they were large, rounded, and contrasted strikingly by their light red color with the darkly pigmented surrounding skin. Furthermore their tops had that delicate lacework tracery sometimes seen.

Like almost all lichen planus patients he suffered from a gastro-enteritis, and had consulted a number of physicians to get relief. One of them, he said with a shake of the head, had advised him to apply a proprietary preparation, which is nothing more than flexible collodion, and added further, with an additional shake of the head, that I would be surprised if I knew who had given this advice. This advice must have been given as frivolously as an old wife's, for there was positively no therapeutic indication for the use of collodion, but the patient took the doctor seriously and made a liberal application. The chloroform did its work as a dolorific, and the collodion held it closely applied to its job. For a short time he was what Sir Walter Scott would call "A wretch concentered all in self."

The evident mistake this physician made in diagnosis was quite pardonable, as lichen is preeminently a disease for a specialist to diagnose. The mistake in treatment, however, was quite unpardonable both from an ethical and from a scientific standpoint.

The treatment of eczema constitutes the bulk of a dermatologist's work, and much of his success is due to his opportune manipulation of three great remedies: tar, lead and mercury. There are many others that are invaluable in meeting special indications, but these three are of prime importance. I think it was Crocker who spoke of the mild mercurial salts, in their quieting effect on cutaneous irritation and itchiness, as being the opium of the skin, and the red oxide, the yellow oxide, calomel and white precipitate are favorite forms in use. I employ the red oxide a great deal, and why it rather than the yellow oxide I do not know, but it seems to me I have better luck with it. The red oxide, however, has one grave disadvantage. It resembles the red iodid both in color and in name, and an unconscious substitution can easily be made. It is one of those errors that an educated, honest druggist can almost as easily fall into as an ignorant, dishonest one. Such mistakes should be set apart in a class by themselves, and viewed in all charity. The consequences of this mistake may, however, be very grave, for while the red oxide of mercury is a bland soothing preparation, that may be used as liberally as desired, and never, except in rare instances of idiosyncrasy, gives rise to trouble, the red iodid is so harsh as to be used in veterinary practice as a cauterizing powder, but is almost never employed topically in human medicine. I have seen the substitution of the red iodid for the red oxide about five times, and now when prescribing it I almost always write a note of warning at the bottom of the prescription. As an instance of this kind of mistake a woman came to me with an irritable, seborrheic eczema of the scalp, for which I ordered an ointment, containing, among other ingredients, six per cent. of the red oxide of mercury. She called the following day, not amiably disposed, and said:

"Doctor, you gave me a terrible time last night. You made a mistake in the ointment, so that I don't know if I shall ever get over it."

The inflamed appearance of the scalp justified her gloomy forebodings. She brought the ointment with her, and it was Turkey red, as red as a French infantryman's trousers, instead of being a shrimp pink as it should be, and showed clearly where the mistake lay. She then related to me that she applied the salve on retiring, and shortly it began to burn. She communicated her troubles to her husband, who with true conjugal frankness bade her go to sleep, as the doctor knew his business. Finally the pain became so intense that she removed the ointment, but continued to suffer severely.

In another instance a medical student was ordered, for eczema of the cheek, an ointment containing the red oxide. The druggist promptly dispensed the red iodid. If that medical student, now an electrical engineer, reads this article, it will remind him of old times, as such memories remain long vivid. The most dramatic experience of this kind was, however, in an eczema scroti. On calling on the patient the following day he looked at me with a moody eye, and said:

"You gave me a bad night of it, doctor. You made a mistake."

A few rapid words of explanation passed, and I asked to see the much blamed ointment. It was the same story, a Turkey red instead of a shrimp pink. He certainly had had a night of it. He could not reach me on account of some defect in the telephone service, and had called in three physicians, and I suppose they all damned me, and from their point of view were justified.

The above are mistakes that can easily be forgiven because they are not the result of greed or ill nature, and in no sense are made with intent to defraud. It is quite a different matter, how-

ever, when the improper compounding of a prescription is due to conceit, to love of unjust gain, or to laziness. I had once an unforgettable experience with a druggist, a self sufficient, introspective individual, whose chief companion was his dog.

A patient, a widow, had eczema and ulcer of the leg, and with it all, had to stand throughout the day behind a counter. Besides pursuing her livelihood she had a number of children to care for. She suffered excruciatingly, but had to smile and do her work. For such conditions peptone paste makes an excellent, bland, light, supporting bandage, the merits of which were first brought to my attention by Dr. H. Kugeler. The formula and mode of application run as follows:

℞

Peptone (dry)	
Amyli	
Zinc oxide āā	15.00
Gummae arabicae	30.00
Aq.	40.00

M et adde,
Liq. cresol. co.
Ol. citronella āā gtt x
M.
S.
Schleich's paste.

The ulcer is first dusted with a mild antiseptic powder composed of equal parts of acetanelid and boracic acid, and then there is fitted over it a piece of gauze. The Schleich's paste is then applied over the dorsum of the foot and the entire leg, followed by one layer of gauze bandage that sinks into and becomes incorporated with the paste. Over the whole is then run a moistened starch bandage, which is allowed to dry. Such a dressing may remain undisturbed for one or two weeks.

Having written the above prescription, I requested the patient to have it compounded, and to return with it as soon as possible, so that I might apply the bandage. She went to the above mentioned druggist, and when she returned, the preparation instead of being drab, to my astonishment was pure white. I telephoned immediately to ask an explanation. The druggist answered, it had been put up as ordered. I insisted that the peptone would make the paste drab. He then admitted that he had not added the peptone as he did not know what it was. I murmured back "Against stupidity the gods themselves fight invictorious," and dropped the 'phone.

Many patients have a decided disinclination to go to the druggist indicated by their physician, and in other cases they may wish to go to their own druggist as they have gone to the doctor of their choice. This is only right as a druggist builds up his trade with people who have confidence in him, and it is just that he should get the trade he has earned. It therefore becomes a delicate matter for a physician to recommend too strongly any particular druggist. Steady bad fortune has pursued me, however, with a preparation that was first drawn to my attention by Dr. Oliver S. Ormsby of Chicago. It is a coal tar found in the Russian Caucasus, and is so prized by Dr. Ormsby that he said jokingly he would like to buy the entire supply. It is excellent in many acute inflammatory conditions of the skin, such as infantile eczema. My associate and myself, for instance, had been treating an obstinate eczema of the lower extremities, which was getting well with its usual deliberation, when we suddenly shifted to naftalan paste. The effect was magical. The patient was in haste to get to London, and he was enabled to leave right away, and he went well supplied with naftalan. A good prescription is:

℞

Naftalan	50.00
Zinc ox.	25.00
Amyli	25.00

M.

Apply once or twice a day and remove by wiping it off with a cloth soaked in sweet oil.

A number of times other naphtha compounds have been dispensed in substitution for naftalan, and this is sufficiently vexatious, but one druggist had the effrontery to persist in his evil ways after being warned of his error. He dispensed something that smelt like moth balls, and made a white powder instead of a dark gray paste. Now we prescribe it so that if it is substituted, anyone can see that the druggist clearly wishes to cheat.

But mistakes are not limited to preparations meant for the exterior. At times the alimentary canal gets a fine warming up as witness the following:

One day during office hours a timid woman, for whom I had recently prescribed, drew a four ounce bottle of medicine out of a reticule, and apologetically remarked that she was unable to take it as it hurt her stomach. On looking at the bottle it was easy to see where the trouble lay; at least one quarter of the contents of the bottle was oil. I had prescribed gaultheria water to fill up the mixture, and the druggist had filled up, by mistake, with oil of wintergreen. The only way I can explain this mistake is undue haste. It was dispensed by a physician, who ran a drug store and practiced medicine. The practice of medicine is very irregular work, piling up in a tremendous rush and then slackening off. The man may have been caught in one of these rushes and poured in the oil without thinking what it really meant, which goes to show that lack of time should be classified as one of the incompatibilities of drugs.

The foregoing are only a few of the contrarieties met in practice. Any of my confreres might easily sit down and write out a list equally good. However, if in reading this it causes some merriment, as recalling similar experiences, and at the same time affords some instruction in our difficult art, the writer will be satisfied.

AN EPIDEMIC OF TRICHINOSIS.*

By GEO. H. RUNCKEL, M. D., McCloud.

In selecting the subject of trichinosis, it is my purpose to present to you observations on a series of fifty-eight cases, occurring at McCloud, California, during the months of November and December of 1911. While the subject is familiar in some localities, yet to the average practitioner it is rather rare. I will, therefore, go into some detail regarding the significant features. Having had five scattered cases during the past year, the present series were somewhat familiar and easy to diagnose.

History of Infection. About November 25th, 1911, an Italian farmer butchered some hogs, and converted a large amount of the flesh into a sausage known as salame. This he sold to the Italian laborers of McCloud. Being able to procure a fresh home-made article, there was eager demand for it, and nearly every family purchased some of the sausage. From one to five days after eating, acute gastro-intestinal symptoms of vomiting, diarrhea and pain in the abdomen began to manifest themselves, having much the same phenomena as are common in ptomain poisoning. A typical case will illustrate the general course of the infection.

Mr. D. R., aged twenty-one, Italian laborer. Habits good. Previous history negative.

Present Illness. On November 26th, 1911, patient ate some sausage obtained from a local farmer. Next day was seized with severe abdominal pain, vomiting and diarrhea. Took castor oil and vomiting ceased, but abdominal pain and diarrhea continued. On the sixth day, edema of the eyelids occurred. This was accompanied by fever, headache, pain in the muscles of the legs, arms and neck. Examination at the McCloud Hospital clinic December 3rd, 1911, shows a very characteristic appearance, i. e., eyelids markedly edematous, tongue exceptionally clean and moist, abdomen tender all over, muscles of legs, arms and neck very painful to palpation or motion.

Temperature 101.4°. Pulse 100. Respiration 20. Examination of urine, negative. Blood examination: White count, 14,800; polymorphoneuclears, 78%; lymphocytes, 8%; eosinophiles, 14%.

A review of the symptoms displayed by this group of cases proves several interesting things. The time of onset of gastro-intestinal symptoms was variable. In some cases, it occurred the day following the ingestion of pork, and in others did not occur until three to five days later. In a few mild cases no gastro-intestinal disturbance occurred. The vomiting did not last over one or two days in any of the cases. The diarrhea in six cases was very violent and resistant to treatment. In some cases it continued for three to four weeks; the bowels moving as often as 15 to 20 times a day. The seat of muscular pain was as follows: In all cases, pain occurred in the calf muscles, ham strings, biceps of arms and neck muscles. In five cases, there was, in addition, severe pain in the laryngeal muscles, causing great hoarseness and painful deglutition. In three cases, the intercostal and diaphragm were the severest points, respiration being extremely painful. In two cases, the masseters were the principal ones involved. In one case, a phlebitis of the femoral vein occurred. Edema of the lids occurred in all the hospital cases. This edema was concurrent with or shortly preceded the muscle pain. The edema was very marked in all cases. In one case particularly, it was so severe and painful that it looked like acute glaucoma, and hot boracic compresses were employed every hour for 48 hours before it could be relieved. Edema of the hands and feet occurred also in a few cases. The fever course was variable. In most cases, not exceeding 102°, only two reaching 104.2°. The pulse rate was always high, ranging between 80 and 120. The tongue in all cases was exceedingly clean and moist. Urine showed no abnormality in any of the cases. Blood count showed variable leukocytosis from 10,000 to 18,000 in those uncomplicated; eosinophiles ranged from 10% to 40%.

Incisions were made in two patients; sections of the gastro-cnemius muscle were taken from the outer head, and microscopical examinations were made. Numerous active free larvae were demonstrated. The sausage was also examined and found to be badly infected. Four to six larvae being seen under each field of the microscope. Numerous examinations were made of the feces, but no intestinal forms were found. Of the fifty-eight cases under observation there was one death (1.7%). In this case, the laryngeal, intercostal muscles and diaphragm were severely attacked. Respiration was so much embarrassed that a pneumonia developed. This case was complicated by round worms, patient having passed six during the hospital period. Portmortem specimens were examined, and the infection was found to be very severe.

Treatment. During the acute stage of gastro-intestinal disturbance, castor oil was given. This was followed by glycerine in half-ounce doses every hour. Acetozone, 15 grains to a quart of water, was given every two hours in four-ounce doses. Quinine, in five-grain doses, was given every four hours for fever. As soon as the febrile condition was over, the patient was put on iron, quinine and strychnine to combat the anemia and to improve the appetite. The diet was liquid until the fever subsided, then foods were added as seemed justifiable. The usual diarrhea mixtures were employed for the bowels. All cold water and other cold drinks were forbidden. Bismuth subnitrate in ten-grain doses was also given. Morphine was used when the pain was very severe. Convalescence was variable; some recovering quickly, while others complained for several months. All are now free from symptoms.

(*Note.* A case of mine, infected with trichina about three months ago was, at that time, about six months pregnant. After the usual course, she became entirely free from symptoms. On January 29th, confinement occurred, and everything appeared to be normal. Two days later, however, the patient was seized with violent diarrhea, and

* Read before the Sacramento Society for Medical Improvement, April 23, 1912.

had a temperature of 103°. Oleum ricini was given and quinine, in five-grain doses every three hours. In two days she was normal again. This may have been only a coincidence, but deserves to be mentioned here.)

Conclusions. First. The severity of the cases seems to depend upon two things:

A. The degree of infection.

B. Muscular localization. Infection of larynx and diaphragm being the most dangerous.

Second. The diarrhea was not confined to the severe infections, but was found most commonly in the milder cases.

Third. The constant, clean moist tongue found in every case seemed a point of great significance, considering the amount of gastro-intestinal disturbance present.

(*Note.* The epidemic recorded above occurred in the combined practice of Dr. R. T. Legge and the writer.)

THE COUNTY HEALTH OFFICER AS THE LOCAL REGISTRAR FOR EACH COUNTY IN THE STATE.*

By GEO. E. TUCKER, M. D., Riverside.

At the request of several of the members of this Society I have prepared a short paper in order to present to you the subject of "The County Health Officer as the Local Registrar for each County in the State."

I am not prepared to state that I know that this plan will correct all the evils which exist under the present method, but I feel sure that every one of you has long since realized the necessity of altering our present system, if our death certificates are to be of any value from the legal or vital statistic standpoint.

Under the present plan the County Recorder of each County acts as the Local Registrar and keeps in his office records of all births and duplicate of death certificates, and is authorized to issue burial permits, his duties in this regard being the same as those of the City Health Officer of incorporated towns.

Upon investigating death certificates on file in the office of our County Recorder for the year 1911 and for three months of the year 1912, I find that more than 50% of them are improperly filled out, more than 50% are incomplete and I find several instances where the place of death is not indicated, where the name of the deceased is not indicated, where the sex is not mentioned, color or race not indicated, date of death not indicated and the cause of death wholly inadequate, unintelligent, or absurd, a number of instances where the death certificate has not been signed by a physician or coroner, the place of burial or removal not indicated, the name of the undertaker not indicated.

In more than one instance I found death certificate had been signed by a physician where the cause of death clearly indicated that the coroner should have been called.

And so I might enumerate some deficiency in practically every certificate of the 150 registered for the year 1911.

I consider those certificates which have not been signed by any physician and where no undertaker nor the place of burial has been indicated examples of gross negligence on the part of the registrar.

I was very much surprised and chagrined to find recorded a number of deaths from typhoid fever and scarlet fever. Cases which occurred outside of incorporated towns, within my jurisdiction, but were never reported to me.

Under the system which I wish to recommend, few, if any, of these evils could occur in instances where the County Health Officer was competent and willing to attend to the duties of his office.

I believe that at the next session of the state legislature an effort should be made to bring this matter to the attention of this body and if possible, to have the law changed so that these records may be of some value to the state from a legal, vital statistic and public health standpoint.

I presume there will be some effort made by County Recorders, because of the few cents which they receive for forwarding copies of these certificates, to keep the records in their hands. If it is of any value that copies of birth and death certificates and marriage licenses should be in their hands, it is a very easy matter to have a triplicate copy made and the same forwarded to the office for filing.

Examples.

1. Name of deceased not given.
2. Ulcerative Pkisis.
3. Double Pneumonia, no indication of type.
   Contributory—Weak heart, 7 dyas.
4. Contributory—Chronic Neprictis,
   Coroner.
5. Septicemia—1 mo. 8 days.
   Contributory—Pneumonia, 1 mo.
6. Chronic Atitis, which attacted him, causing paralysis and death.
   One day duration.
7. Cancer or Carcoma of the stomach.
8. Myro Carditis.
9. Uremia—5 days.
   Contributory—Prostatic disease.
10. Uremia and lack of vitality.
11. Acute Bronchitis,
    Contributory—Cystitis.
12. Pericarditis—
    Contributory—Rheumatism.
    No physician signed, no undertaker indicated.
13. No undertaker, not place of burial indicated.
14. Chlorea-morbus, few hours.
    92 years 11 mos. 11 days.
15. Place of burial not indicated.
16. Tomaine poisoning and Uraemia.
    No doctor indicated.
17. Disease of liver and stomach.
18. Tumor of brain,
    Contributory—Accident on bicycle.
19. Spinal Meningitis, no type indicated.
20. Cardiac failure,
    Tuberculosis.
22. Accidental crushing of body by falling tree, causing death in about 15 minutes. Witnessed by several and I saw child a few moments after dead. No coroner.

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

23. Epilepsy, Alcoholic.
24. Spinal Menengitis, no type.
25. Brights disease.

1911.

Jan.	15
Feb.	14
Mch.	7
Apr.	12
May	14
June	7
July	7
Aug.	14
Sept.	13
Oct.	18
Nov.	15
Dec.	14
	150

HYGIENIC LABORATORY OF THE STATE BOARD OF HEALTH.*

Report by W. A. SAWYER, M. D., Berkeley.

At the beginning of the current year the State Board of Health established a Division of Epidemiology under the Bureau of the Hygienic Laboratory. As a result, we anticipate being able to do more than ever before in studying and controlling epidemics. The Division has already made decided progress along two lines of investigation, both of which depend to a great extent on the laboratory side of the work.

The first epidemiological study was that of the present epizoötic of rabies. The pin map in the laboratory and our records of examinations of animals' heads show how the disease in California first became prevalent in Los Angeles in the summer of 1909. It spread over a large part of Southern California and finally crossed the Tehachapi mountains in January, 1911, when it appeared in Bakersfield. From there it moved steadily northward and became very prevalent in Kings, Tulare, and Fresno counties. North of this there had been, until recently, no indication of the disease except a few scattered cases. The disease is now present in Merced, Stanislaus, San Joaquin, and Contra Costa counties, and in San Francisco.

We have made 210 examinations of animals' heads for rabies at the State Hygienic Laboratory in the past two and one-half years. 149 of these showed positive evidence of rabies. The increase in the number of cases is indicated by the fact that in the first year and a half we had 44 positive cases, and in the last year, 105. The months showing the most examinations were those of the past winter.

In San Francisco we had a case in October, 1911, and no other until January 30, 1912. During February and March and the first half of April, the laboratory of the Health Department of San Francisco examined 104 brains for rabies; 75 gave positive results. Two of the San Francisco cases were human and were confirmed by examinations in the city and state laboratories. Ten human deaths have occurred in California up to date; 7 in Southern California, one in the San Joaquin Valley, and two in San Francisco.

The second epidemiological investigation which I wish to call to your attention is a study of cases of typhoid fever among sailors. Some time ago it was noticed at the Marine Hospital in San Francisco that a great many typhoid cases came from a single ship. This was brought to the attention of the State Board of Health last December. Our investigation was carried on in two ways, by field work among the ships and by laboratory examinations. We found that a "carrier" on board a lumber steamer was responsible for twenty-seven cases. Four of these died. The cases from this "carrier" which were sent to the Marine Hospital represented one-fourth of all the cases of typhoid admitted to that hospital during nearly four years, and one-third of the deaths.

These two studies are examples of the kind of work which will be carried on by the Division of Epidemiology.

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

DIAPHRAGMATIC PLEURISY.*

A Stumbling Block in the Consideration of the Acute Abdomen.

By DANIEL CROSBY, M. D., Oakland.

In these days of rapid surgical advance, more and more those men who are doing only occasional surgery are operating upon patients who were heretofore left for the consideration and discretion of the surgical specialist.

The immediate and amazing relief which follows successful surgical intervention in acute conditions in the abdomen has placed the general public in a receptive mood leading to the ready acceptance of advice for operation with the result that many abdomens are opened before the operator has taken the pains to establish premises for his procedure, and in no group of cases perhaps is there more chance of error, and more demand for painstaking inquiry and observation than in those cases of abdominal pain in which a lesion above the diaphragm may be a causative factor.

Appendicitis, its dangers and disasters has set even the most poorly informed of the general public by the ears and a medical attendant who does not recognize it speedily, comes in for a full measure of condemnation. Furthermore, an increased interest in and understanding of evidence of ulceration of stomach and duodenum with the not infrequent resultant perforative peritonitis keeps medical men upon the qui vive to identify such catastrophes

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

and operate for their relief at the earliest possible moment.

With a patient young or old in a marked condition of distress, with fever, vomiting, respiration labored and increased in frequency, anxious cast of countenance, high blood count, "nothing much showing in the lungs," and with a medical attendant who has a keen and bitter recollection of a patient lost because in the past he or a confrere had failed to recognize a perforated gastric ulcer, the temptation to open the abdomen is pressing. If this be done, a normal abdomen found, and a pneumonia discovered within the succeeding 48 hours "ether pneumonia" as an unfortunate complication covers up some sins of omission in diagnostic effort.

While there are many abdominal conditions upon which we may go astray the one to which most particularly we allude are perforated gastric or duodenal ulcer and appendicitis; and in referring to diaphragmatic pleurisy as a "stumbling block," the writer is not so much alluding to the more unusual simple pleurisy as to the basilar pneumonia which is so often masked for 24 or more hours and overshadowed by preponderating abdominal symptoms which take the observer far afield.

Medical literature is full of references to cases of this sort and if there be any virtue in this paper it will be merely that of serving to emphasize what J. P. Crozier Griffith refers to as the "Well recognized, long known, but frequently forgotten tendency of patients with pneumonia or pleurisy to refer their pain to the abdomen." (*Jour. Am. Med Assn.,* Aug. 29, '03.) Numerous journal articles and most of our text books refer to the "well known abdominal onset" or the "well known abdominal pain" in certain cases of pneumonia, and most writers dismiss the subject with such a reference.

Osler (Practice, p. 651) says, "Intense subjective with trifling objective symptoms are always suggestive of diaphragmatic pleurisy," and men of close observation and wide experience become sufficiently adept to estimate at something like its true value, the complaint of abdominal pain. But what of the man who sees for the first time a rugged man or a sturdy child stricken suddenly with such an illness the very urgency of all the symptoms of which tends to confuse his efforts to eliminate or establish the value of any sign?

Case in point 1. J. B. French artist 46 years old. User of alcohol in all forms, denies lues. Had tracheotomy done in early childhood in Paris; wore a tube for a long time and has some constriction of the trachea which has always noticeably interfered with his breathing and given him a peculiar dry whistling cough—always without expectoration.

He also gives a long history of stomach trouble, nothing, however, indicative of ulcer, save such as his alcoholic history would suggest. When the writer was called to see him he was found sitting in a chair, weak and exhausted, covered with sweat and suffering from severe abdominal pain which was referred to practically the entire right half of the abdomen. There was no history of a chill and the pain had come on suddenly about 8 hours before, followed by vomiting and collapse. Vomiting occurred several times before and after seeing him. His temperature was 100° F., respiration 32, pulse 130, small and weak. He was removed to a hospital at once and a very thorough examination made. His lungs were clear, his heart much enlarged as was also his liver. His abdomen was fat and distended and inasmuch as he was a very nervous man it was difficult to determine whether there was much abdominal relaxation during his morning expiration. Between his efforts at vomiting, his groaning, and his extreme restlessness he was a difficult subject for examination. But there was definite tenderness over the 10th, 11th and 12th ribs on the right while all of his pain was referred to his abdomen. During all of this time, and through the day and succeeding night this man dripped with sweat.

Blood count: White cells, 22,400; polynuclears, 89%; large mononuclears, 6%; small mononuclears, 5%.

He was given a small dose of heroin, sufficient to make life tolerable, and I remained at the hospital to watch him. About 2 a. m., 16 hours after he was first seen, by standing at the head of the bed and observing the patient's uncovered chest as he lay upon his back, the writer noted that the excursion of the right base of the chest was decidedly less than the left. We shaved the patient's very hairy chest and at the base of the right lung in the axillary line and posteriorly found a few rales at the end of inspiration. Six hours later he raised a little blood-stained mucus and our diagnostic problem was largely solved. Within another 24 hours effusion had occurred and he had no more pain.

This man had shock enough for an exploded appendix or a perforated gastric ulcer; he had a long history of gastric difficulty; he had pulse and temperature which would go with either condition, but though he really sought operation the facts that peristalsis had not ceased, that palpation did not increase pain, that some expiratory relaxation was obtainable; and that there was a diminution of excursion of the right chest, kept us out of his abdomen long enough to make a diagnosis.

Case 2. Sturdy colored child 7 yrs. old, taken suddenly with abdominal pain, rigidity, repeated attacks of vomiting and high fever. Attendant's diagnosis of appendicitis accepted by one, and rejected by another consultant in favor of pleurisy of the diaphragm. He was seen by the writer on the third day because the attendant was still convinced that the child had an exploded appendix and he felt that he should operate. History (obtained from mother) showed child had slight cough and was not quite well for one week before onset of urgent symptoms. Pain came on suddenly accompanied by persistent vomiting and high fever. The child was found lying slightly upon his right side, his respiration catchy, 42 per minute, alae nasi dilating at each inspiration and each grunting expiration, interrupted by a short, sharp cough. His pulse was 126, full and strong, his abdomen was distended and any effort to palpate it elicited cries of fear from the lad. By making firm, steady pressure, however, and by the exercise of a little patience, the abdomen could be palpated readily and the expiratory relaxation helped to eliminate peritonism from serious consideration. A shower of crepitant rales in the base of the right lung laterally and posteriorly cleared any remaining doubt; the attendant informed me that he had heard a few small rales on the evening before when the previous consultations were held but he thought that to be due to a hypostatic condition.

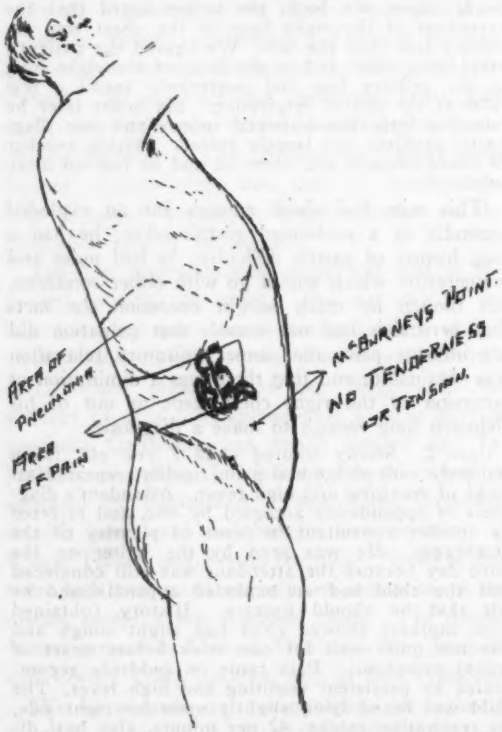
Case 3. A sturdy boy of 8 yrs. son of a physician, without premonitory symptoms complained of great pain, with rigidity of abdominal muscles, slight dry cough, spasmodic grunting, shal-

low respiration, temperature 101°, pulse 106, respiration 40, no previous history of cough. Chest was clear. The writer made a diagnosis of diaphragmatic pleurisy.

Blood count: Total whites, 15,400; polys., 80%.

Within a few hours this lad was seen by Drs. Wallace Terry and W. A. Clark and they concurred in the diagnosis. During the succeeding 24 hours a few small, crepitant rales were heard in the base of the left lung anteriorly, and then they disappeared as did all of the symptoms of distress and illness. Save for the blood findings, this was apparently a case of simple diaphragmatic pleurisy.

Case 4. V. H. G., age 8 yrs. Notes supplied by his father, a practicing physician. "The present illness was ushered in by a severe headache, and stupor with delirium at times, also gastric symptoms which were thought to be due to eating green cherries. After cleaning out the bowels he seemed to be a little better for about 2 days. Then he began to complain of severe pain which he located in the region of the appendix. At this time on making an examination I thought I discovered a friction sound on his right side."



He has given phenacetin and dover's powder, sufficient to control some of his pain, and on the 4th or 5th evening the lad's temperature arose to 105°. Dr. W. A. Clark was then called, the attendants feeling that the patient required surgical attention. By the time Dr. Clark arrived the boy had been lulled to sleep by the sedatives and his whole condition was masked. A few hours later, however, when it was the writer's privilege to see him, the lad's suffering was intense and his rigid, distended abdomen was not a comforting thing for any of us to look upon.

However, his disturbed pulse respiration ratio, his grunting respiration, his distended alae nasi, his expiratory abdominal relaxation all spoke of trouble above the diaphragm. A patch of dullness in the base of the right lung posteriorly with a shower of crepitant rales completed the picture. This boy passed through a severe pneumonia and afterwards developed right-sided empyema which finally cleared.

Case 5. Supplied by Dr. Galbraith, father of the lad described as Case 4. Boy of 9 yrs. Had chill followed by headache, temp. 105°, severe pain in pit of stomach and in right shoulder, three days later there appeared a patch of dullness with fine rales at the end of inspiration at base of lung on left side. The boy passed through a typical pneumonia.

Case 6. Frenchman, 36 yrs. History of acute arthritis and pericarditis at 20. When apparently recovering from an attack of acute arthritis he developed a severe attack of abdominal pain with sweating, high temperature, and precordial distress.

Status: Patient pale and drenched with sweat, respiration 38, labored and catchy; pulse 136. Diminished excursion of left base anteriorly A. C. D. slightly increased. Auscultation; pericardial friction rub, as well as mitral and aortic regugitant murmurs. Abdomen distended and rigid, but relaxed somewhat on expiration and pain was not increased by palpation though the patient's entire complaint was of abdominal pain and slight precordial distress. He had been given a laxative but no movement had occurred for 2 days.

A few hours later the patient died suddenly and the postmortem revealed a clear abdomen, pneumonia in base of left lower lobe anteriorly with diaphragmatic pleurisy; extensive adhesion between the pericardium and left lower lobe of lung, pericarditis and endocarditis.

This man was markedly prostrated, and practically all of his complaint was of his abdomen, yet the cause of his pain was above the diaphragm.

Case 7. H. C., 12 yrs. Sturdy boy. Had been feeling badly for 4 or 5 days and had slight cough. Taken ill suddenly with pain in right hypochondriac region, vomiting, headache and high fever. He was seen by the writer within 12 hours and found lying upon his right side breathing with difficulty and in great pain. His face was flushed, tongue dry and furred, alae nasi dilating with each inspiration, respiration 38, shallow and grunting. Temp. 103.5°, pulse 120. His abdomen was distended and absolutely rigid during inspiration but relaxed moderately during expiration. There was tenderness over the 11th and 12th ribs on the right side. His chest was clear, but upon viewing it from the head of the bed as the boy lay flat on his back a decided diminution in the excursion of the right chest was noted. Within 24 hours rales appeared in the right lower lobe laterally and most of the pain subsided although the tenderness over the 11th and 12th ribs remained. The boy passed through an ordinarily severe attack of pneumonia and on the 9th day the temperature dropped to 97°. During the night, however, the lad complained of more pain and I was called to see him early in the morning, to learn he was having pain in his right hypochondriac region especially posteriorly.

An area of thickening or rather of tension was present in the right hypochondrium and the lad complained of some pain upon moving his right leg. Blood count, 14,200; polys., 79%. A diagnosis of appendicular abscess with a probably undescended large bowel, was made and the lad removed to the hospital for operation. His temperature was 103° and he seemed very ill.

Operation revealed a retroceal abscess which, because of the shortness of the ascending colon, was also practically a sub-hepatic abscess, and most of the appendix was disintegrated.

The lad returned to bed in very bad shape but he rallied and did very well for a few days, save that the right lung was slow in clearing up, and three weeks later it was necessary to re-operate to evacuate a very high subhepatic abscess. The lung is clearing up and the boy is now on the high road to recovery.

Here we had a boy who had a perfectly typical lobar pneumonia with evidence of abdominal pain most of which subsided within 48 hours upon the appearance of an effusion.

The whole pneumonic picture was complete and we again had our attention called to the abdomen. The state of disintegration in which the appendix was found proves beyond question that the attack of appendicitis was much more than 24 hours old, and we are in no way able to declare that the two conditions did not develop simultaneously.

There was no broadening of the abdomen, and this is probably due to the fact that the appendix was behind the colon and very high up. The sketch shows the location of the appendix and its abscess.

These case reports have been run through rapidly but no words of mine can depict the suffering experienced by a few of these patients who were manifesting "the well known abdominal pain," as an accompaniment of pneumonia.

If we consider pain, fever, headache, vomiting, abdominal rigidity, with its small, running pulse, as evidences of peritonism, we have the same symptoms to consider in cases of "abdominal onset" in pneumonia.

A few points we must bear in mind: 1, History and age of patient aids materially; 2, the onset of fever is more sudden, it goes higher and is more sustained in pneumonia; 3, headache and dry furred tongue more pronounced and occur earlier in pneumonia; 4, vomiting is more frequently repeated in pneumonia; 5, evidence of shock is practically always more marked in the abdominal condition though it may be simulated by pneumonia; 6, tender points may be found along the insertion of the diaphragm in pleuritic conditions; 7, abdominal rigidity occurs with the first evidence of pain in diaphragmatic difficulty but it awaits the occurrence of some peritonitis in the abdominal conditions. Patience in examination will reveal expiratory relaxation of abdomen where diaphragm alone is concerned.

From the standpoint of diagnosis we must reiterate the all but worn out adage "get your history" and let it be complete. History practically holds the key in the gastric or duodenal perforation cases. Having obtained the history, do not permit the apparent urgency of the symptoms to interfere with a painstaking examination. The man who finds a rigid abdomen will hunt for a head zone, he will try the legs for evidence of pain in the right psoas muscle, he will uncover the abdomen, and step to the foot of the bed to get an accurate impression of the respiratory excursion of the abdomen and its contour. But having done these things, he views the thorax from the same position, if at all, and rarely do we see a man uncover the chest and then go to the head of the bed and standing in a position to view both sides of the thorax from the median line thereby see and be able to judge the relative excursion of each side. If then he have a thoracic condition confronting him he will see quickly the limitation of excursion bespeaking a diaphragm arched up, like some lashed colt in a quivering resistance to a second blow. The grunting, catchy respiration with these other signs ought to keep him from going astray in his findings.

Discussion.

Dr. I. W. Terry, San Francisco: I think it is a good thing to draw attention to these errors or possible errors. Personally I have been guilty of opening the abdomen three times in pneumonia or diaphragmatic pleurisies because I could not make the correct diagnosis. In one of them after the removal of a perfectly normal appendix a very careful examination of the lungs failed to show anything abnormal and it was not until 48 hours later that a diaphragmatic pneumonia was manifest. It is very possible that had we observed the excursions Dr. Crosby mentions we might have avoided this. In these examinations in stepping to the head of the bed and looking down, one should have the light coming from the foot or from the head. One can easily mistake the excursion of the diaphragm unless the light is arranged just right. One other point in the diagnosis—it seems to me that ordinarily the leukocyte count is higher in the beginning pneumonias than it is in the appendix or intra-abdominal cases. In one of my cases there was a leukocyte count of 24,000 with very marked rigidity of the abdomen but not enough localized tenderness to account for it and not until a number of hours later could pneumonia be diagnosed. The last case is very interesting from a diagnostic standpoint. Dr. Crosby certainly worked it out very admirably.

ANTITYPHOID VACCINATION.*

By MAJOR BROOKE, U. S. Army.

Before taking up the prophylactic treatment of typhoid fever, I will preface my remarks by referring briefly to the morbidity and mortality of this disease in recent wars and in the United States at the present time.

During our civil war 80,000 cases of typhoid fever were recognized as such amongst the federal forces and probably as many more sick were accounted for under other heads, owing to the imperfect methods of diagnosis present at that period. In the Franco-Prussian war over 70,000 cases were reported in the German army. During the Spanish-American war about 20% of the men in the national encampments came down with the disease, of which 7% died, and it developed in 90% of the volunteer regiments within eight weeks of mobilization. In the South African war the British forces, consisting of 555,000 men, had 57,684 cases, of which 8,225 died. According to Osler about 500,000 people in this country incur enteric fever annually, with a mortality of from 35,000 to 40,000.

Certainly any measure capable of preventing typhoid fever or reducing the mortality of this ubiquitous disease is worthy of careful study and consideration.

Simmons and Frankel, as early as 1886, discovered that it was possible to immunize animals against the typhoid bacillus, by inoculating them with living cultures, but no further progress was made in this line until Brieger and Wassermann found out six years later that it was practicable to protect animals by the use of dead organisms.

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

This important discovery made it possible to conduct experiments on human beings and a few years later it was definitely proved that immunity secured by employing vaccines was associated with a marked increase of both agglutinins and bacteriolysins, just as in immunity produced by an attack of fever.

While perhaps not the first to employ killed cultures of typhoid bacilli, or what is now commonly termed antityphoid vaccine, to produce immunity against this microorganism, Sir A. Wright was the first one to urge its use and employ it on a large scale. Although his work was encouraging, it was not satisfactory enough to enthuse others and following the Boer war the employment of antityphoid vaccine fell into disuse. This was due to the imperfect immunity secured, the severe reaction following its administration and the possibility of a negative phase. The last objection Wright himself called attention to, realizing it would render the subject more susceptible to enterica, if exposed to infection immediately after inoculation.

The further use of antityphoid vaccination was largely due to the careful and scientific work of Sir Wm. Leishman and his assistants. Their experiments demonstrated that it was possible to effectually immunize people against typhoid fever, without producing a negative phase and without any general or only a slight general reaction, in the majority of cases. These brilliant results were obtained by making the following changes in the preparation and the administration of the vaccine:

Employment of non-virulent cultures.

Preventing subsequent contamination of the vaccine by preserving it in ¼% lysol.

Accurate standardization of the product.

Employment of divided doses in its administration.

The establishment of the entire subject on a sound scientific basis and the wonderful results obtained in the vaccinated troops sent to India reawakened Major Russell's interest in the matter, in 1907. Since that time, chiefly on account of his work and his advocacy of antityphoid vaccination, our entire army has been inoculated and considerable interest aroused in the medical profession throughout the country.

As used in our army to-day, the antityphoid vaccine is prepared by growing a non-virulent culture of typhoid bacilli on agar for about twenty-four hours, washing these off with salt solution, sterilizing them at 53 degrees C., or a little above this point for an hour, standardizing the product and adding a small amount of liquor cresolis compositus to prevent subsequent contamination. Many modifications of the above method have been used in the preparation of the vaccine, but I will only mention one here. Russell reports that antityphoid vaccine sterilized by formalin remains active longer and seems to give greater protection to rabbits than that sterilized by any other method, hence it is not improbable that the latter method may supersede the former in the preparation of vaccine for human use.

The vaccine is given in three doses, at intervals of ten days each and is usually injected, with an ordinary hypodermic syringe, under the skin, at the insertion of the deltoid muscle. As the vaccine is a suspension in salt solution, the container should be shaken before the emulsion is drawn into the syringe. The administration of the vaccine in divided doses is an important factor in increasing its immunizing action, it also lessens the liability of a negative phase and reduces greatly the local and general reactions.

The initial dose contains 500 million bacilli and the other two one billion each. A local reaction always occurs and consists usually of some redness, heat, tenderness, slight swelling and infrequently pain at the site of inoculation. One or all of these signs of inflammation may continue from two to four days. Occasionally the above symptoms are exaggerated and even enlargement of the axillary lymphatic glands may be noted.

No general reaction occurs in about 60% of those vaccinated and a mild reaction in about 35%; so altogether the general reaction is absent or insignificant in about 95% of all cases. In a few people the reaction is so severe that the subject has to take to bed and he may be quite uncomfortable for several days. I have never seen any permanently harmful action that could be definitely attributed to the vaccine follow its employment. However, I agree with Davis that it should not be given indiscriminately to the weak or infirm.

One case came under my observation, after the second dose, with a temperature of 102.5 degrees F., considerable headache, backache, coated tongue and loss of appetite. On the fourth day moderate enlargement of the spleen was noted and about half a dozen spots suspiciously like rose spots appeared on the abdomen. For a while I feared the man had contracted typhoid fever, just prior to the first inoculation, and had a blood culture made for typhoid bacilli. The next day I was gratified to find the temperature normal, all the symptoms rapidly disappeared and needless to add the blood culture was sterile. The third dose, which in this case, was given on the fourteenth day after the second one, did not cause a general reaction.

Recent experiments by Russell and the English authors show conclusively that a negative phase ordinarily never occurs and that the agglutinins and the protective bodies in the serum are always increased following inoculation. The possible presence of the former must always be recognized in the diagnosis of an inoculated subject suspected of having typhoid fever and usually persists in the blood in sufficient quantity to agglutinate typhoid bacilli in dilutions of from 1-50 to 1-100 for a period varying from one to four years.

How long immunity from typhoid fever, induced by vaccination, lasts is not definitely known. Most authorities agree that 90% of those inoculated will be protected for from two to three years and no doubt a smaller per cent. much longer. As far as I am aware, no data has been published giving any information of how long immunity will con-

tine, reinforced by second and third inoculations at intervals of two to three years. Scarcely enough time has elapsed to determine this period by actual experiment, but I anticipate that each succeeding vaccination will confer protection for a longer period than the preceding one.

The results obtained by the use of antityphoid vaccine to-day are much superior to those produced by Wright in his early work. During the Boer war, Wright inoculated about 100,000 men. Among these, the incidence of the disease was cut down 50% and the mortality among the inoculated who subsequently contracted fever was one-half of what it was among the non-vaccinated.

In 1905, 150 individuals of the 17th Lancers, out of a total of 593, were vaccinated while en route to India from England. Shortly after taking station at Meerut, an epidemic of enteric fever prevailed. Sixty-three cases occurred, of which sixty-one were among the non-inoculated and the other two arose in men who refused the second immunizing dose. Prior to the Gettysburg maneuvers in 1910, ninety-two men out of 118 of Company "A," First Battalion of Engineers, received antityphoid vaccine; two others had had typhoid fever and were considered immune. Of the twenty-four non-protected, six, or 25 per cent., incurred typhoid fever. No cases developed among the ninety-two vaccinated men.

In India among the white troops, which average 70,000 annually, the admission rate and the death rate from typhoid fever have gradually fallen from 15.6 and 3.19 per thousand in 1906, to 4.6 and .63 per thousand in 1910. During this period the percentage of the command vaccinated has increased from six to eighty. No more convincing statistics upon the efficiency of antityphoid vaccination in the prevention and the reduction of the mortality of typhoid fever, upon a large scale and for an extended period of time, have yet been published.

In the maneuver camp at San Antonio last year, although typhoid fever existed in the vicinity, only two cases occurred among the troops—one case in a civilian teamster who had not been vaccinated, the other case in a soldier who had received two of the three inoculations. This is a striking contrast to the 20 per cent. afflicted in the national encampments during the Spanish-American War.

Many more military statistics upon the efficacy of antityphoid vaccination might be quoted, but would be out of place in a short discussion of this kind.

Before completing this part of my paper I do not want to give you the impression that antityphoid vaccination has been the only factor in reducing the morbidity of enterica. Searching out and isolating typhoid carriers, progress in sanitary science and the realization of the necessity of thoroughly carrying out approved measures have had their place, but any one who will make a critical study of the question will, in my opinion, be convinced that antityphoid vaccination has been by far the most potent measure at our disposal.

That antityphoid vaccination can be extended to other fields with beneficial results is shown by the reports upon the inoculation of nurses by Richardson and Spooner of Boston and Davis of Chicago. Richardson states that a hospital nurse in Massachusetts is about eight times as liable to contract typhoid fever as the ordinary citizen. Spooner found for the decade prior to 1909, from two to six nurses developed typhoid fever annually at the Massachusetts General Hospital. In 1909 and 1910, following the employment of antityphoid inoculation, only one nurse incurred this disease and her case ran a mild course. The experience of Davis in Chicago has likewise been encouraging.

Unquestionably the immunization of doctors, nurses and orderlies attending typhoid patients is unqualifiedly called for and should be urged whenever practicable. In mining camps and wherever large bodies of people are crowded together, under imperfect sanitary conditions, a like procedure should be strongly advocated. In towns and communities where an epidemic is prevailing, all unprotected persons should be advised to avail themselves of its use. Whether antityphoid vaccination will ever be as universally employed as vaccination against variola, I cannot say, but I am prepared to recommend its general use in all unprotected healthy individuals under forty years of age.

Reasoning from analogy, one would think that antityphoid vaccination ought to be indicated in ridding typhoid carriers of their infection, but unfortunately its use here has not been very promising. Conversely its employment in the treatment of typhoid fever would appear to be adding more fuel to the flame. Nevertheless Leishman reasoned that if antityphoid serum reduced the mortality of this disease by increasing the opsonins and the phagocytic activity of the leukocytes, the same results might be obtained by the judicious use of antityphoid vaccine. The experience of Smallman, Kennedy, Pollock and other English observers would tend to confirm this view. Personally, I have had no experience in the treatment of enteric fever with antityphoid vaccine and will dwell no longer upon this phase of my paper.

I trust I have not conveyed the idea that we should, for one moment, relax our efforts in carrying out all sanitary precepts known to be efficient in the prevention of typhoid fever. My object has been to emphasize the importance and endeavor to prove to you the utility of a supplementary measure, readily obtainable, easily applied and that promises greater success in reducing the morbidity and mortality of typhoid fever than any procedure heretofore advocated.

Discussion.

Dr. W. V. Brem, Los Angeles: I wish to express my appreciation of a paper of this kind which deals with an ever-present disease—500,000 cases a year in the United States and 40,000 deaths. It seems to be much more desirable to be associated with a movement tending towards the control of a common, everyday disease that has lost some of its interest perhaps because of our familiarity with it, than to gain distinction by the discovery of rare organisms, causes of disease that have but little influence on human life. We want more work on the widespread diseases and we want to hear less

of rare things. I have had a little experience in anti-typhoid vaccination. In Panama there was a small epidemic among the nurses of the hospital and we were unable to discover the origin. Neither the water nor the food supply could be convicted and a search for a typhoid carrier was fruitless. There was quite a little disturbance in the minds of the nurses and we instituted vaccination, making it voluntary. About 20 nurses and physicians were vaccinated and the epidemic ceased. At another time, my own little girl, if you will pardon the personal reference, developed a typhoid-like fever and we isolated from her blood the paratyphoid "B" bacillus. I vaccinated my family and none of the others became ill. Regarding the treatment of the chronic typhoid carriers, we were able to cure a urinary carrier, a little girl of four years, by vaccination with an autogenous vaccine. We gave her nine injections before eradicating the infection. I regard this prophylaxic measure against typhoid (antityphoid vaccination), as one of the great advances that medical science has achieved in these late years that have been so full of far-reaching discoveries. I wish to express again my appreciation of the paper that has just been read.

Dr. Geo. H. Evans, San Francisco: I would like to particularly emphasize one recommendation in this paper and that is the recommendation calling for the vaccination of nurses, doctors and internes. I would go further than that and would seriously recommend that the family physician urge upon his patients the necessity for typhoid vaccination. I have in my service at St. Luke's a nurse seriously ill with typhoid contracted in attendance upon one of my typhoid patients. The nurses in the training school have all been inoculated prophylactically. Regarding the negative phase I will present a personal illustration. I personally went through this inoculation a few months ago and one week after my second inoculation I presented a decidedly negative Widal. Fearing some mistake regarding the typhoid culture it was confirmed by a strain in use at the Presidio. About one month after there was a very strong and definite agglutionation, showing that in some cases there is a temporary negative phase following these inoculations. The question of immunity and the length of time of the immunity cannot, of course, be definitely decided at the present time. The whole question is too new.

Dr. René Bine, San Francisco: Not only is the author of this paper to be congratulated but the Society owes him a debt of gratitude for having brought before it his experiences in this work. The tremendous work of the Army Medical Corps along these lines is not appreciated by many of our members and unfortunately we as individuals cannot enforce such prophylactic measures as can be done in the army. It must be remembered that even in the army, however, no soldier has been, so far as I am informed, vaccinated against his wishes, and in view of the fact that reactions are seldom severe, soldiers are rather glad to get the period of rest necessitated by the routine of vaccination and observation following. My own experience with typhoid vaccination is limited to six cases—all persons exposed to the disease. No severe reactions occurred. The benefits to be obtained with typhoid vaccines in treatment of the disease, as has been stated, are rather uncertain. There is no uniformity in the doses recommended, some advising one million bacilli or less, others hundreds of millions. I have employed them in but two cases; in the first I thought I did some good, whereas in the second I am not sure that the vaccine did not slightly prolong the disease. Everybody has seen cases run such atypical courses as to realize the difficulties in estimating the results with such medication.

Dr. D'Arcy Power, San Francisco: To my mind the greatest value to be derived from Major Brooke's paper would be in getting its facts prominently before the public. In an editorial in the State Journal I attempted to do this some months ago and I believe that there is no field of experimental medicine which would be so readily understood and at the same time so helpful to establishing a right understanding on the part of the public of the value of medical research as a clear statement of what has been achieved and is yet possible by typhoid vaccination.

Dr. A. S. Lobingier, Los Angeles: I presume that typhoid fever is supposed largely to be a condition which interests only internists but any one who has had typhoid will recognize that it is a question of great importance to all. I do not know of any disease of acute character which will leave more evidence of impairment. I think the laity is very erroneous in believing that typhoid will benefit an individual. Typhoid very seriously complicates the gastro-intestinal tract. The fact that 80 or 85 per cent. of the pathological conditions are direct result of typhoid shows that it is a question of mortality.

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THE TUBERCULIDES AS OBSERVED IN SOUTHERN CALIFORNIA.*

By RALPH WILLIAMS, M. D., Los Angeles.

When, at the solicitation of Dr. Anderson, the author agreed to write a paper with the above title, he was under the opinion that it would be very easy to secure all the necessary data, in relation to the prevalence of the various manifestations upon the skin which the tubercle bacillus or its toxins may give rise, to render it of some value to you, and particularly to dermatologists in other portions of the country. However, in seeking this information from various members of the profession whom one would naturally expect to have come in contact with many cases, the author finds that their records have not been sufficiently accurately kept or have been otherwise lost or misplaced, as to render anything like a complete analysis possible. Consequently he will have to draw largely, if not entirely, upon such as have passed under his own observation either in private practice or at the dispensary of the Medical College of the State of California in Los Angeles, at which, either under its present name or its old one (the College of Medicine of Southern California), he has been in active and fairly constant attendance since 1893. The records of this institution also have unfortunately been displaced in part and are not strictly available for the purpose under consideration. You can readily see from the foregoing that most of the paper is an explanation and an apology.

One would naturally suppose that in Southern

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

California where countless thousands have come for tubercular conditions of the lungs, that diseases which are closely associated with pulmonary tuberculosis, both in its active and its hereditary influences, that lupus vulgaris and tuberculosis cutis would be comparatively common in those who have sought our climate and its benefits, and particularly in their offspring. However, the tuberculides, as I have seen them, are comparatively rare. By rare, I mean that I do not suppose, from what I have been enabled to learn, that they are any more common here than elsewhere. Certainly we do not see such mutilating and far-reaching effects of these lesions as are commonly reported, photographed and under treatment upon the European continent and in England.

In an article of the author's, published in 1897, in analyzing twelve hundred cases of skin and venereal diseases, excluding syphilis, there were six hundred. Of these lupus vulgaris constituted three cases and tuberculosis cutis ten cases, showing a predominance of the latter over the former, which is perhaps the inverse ratio of other localities, and yet in the author's own private cases, out of some forty patients with one or the other of these lesions upon the skin, the ratio is reversed and lupus becomes the most common with some twenty-five cases and the tuberculosis cutis the remainder. My friend, Dr. Bancroft, of Los Angeles, had occasion in his connection with the public school department to inspect fifteen hundred school children, in only one of whom was there any condition upon the skin which might be attributed to a tubercular origin. This child presented a small patch of cutaneous tuberculosis. In the children's hospital in Los Angeles there are not at present any cases of either of these diseases. I was unable to get definite information in regard to the Catholic Orphan Asylum, where there are many more children than at the hospital.

In this article lupus vulgaris will be considered as a separate and distinct disease, not because of a separate origin, but because of its ancient and definite clinical manifestations which have been described many years previous to the discovery of the tubercle bacillus, and hence will probably for many years to come be classified as a clinical entity. We will not consider extensively either the clinical appearance or the histopathology of lupus or of cutaneous tuberculosis, since some of these are to be discussed in other papers.

Practically all patients with lupus vulgaris that have passed under the author's observation have been of mature years, since as you know the disease commonly begins in childhood or early youth and lasts indefinitely: it was the absence of lupus in children which first attracted attention and led to such investigation as has been made. The characteristic apple jelly nests have been present in all cases and it is due to their presence, together with the fact that in tuberculosis cutis they are usually absent and that in the latter disease its history frequently dates back only a few months or years, that the distinction is made for present purposes in this paper. Most of the patches that it has been necessary to destroy have been less than two inches in diameter, and the author only recalls two patients, both of whom were children and victims of lupus since early childhood, who presented at all the mutilated, scarred and superficially ulcerated appearance the photographs of which we see in our text-books. It is perhaps in dealing with such extensive lesions that foreign authorities do not consider several months or a year of time more than necessary to cure lupus, whereas the author, whose experience has been with the smaller and perhaps less malignant types of the disease, considers that the X-ray and the Finsen light treatments are absolutely a waste of time, particularly the latter, where, as you know, that in the Finsen Institute patients return day after day for hour after hour of treatment through months and months of time. The X-ray he has only found useful in such locations as the inner side of the nostril and particularly the eyelid where other and more active preparations cannot be safely used.

Tuberculosis cutis has occurred sufficiently often to be of distinct interest to all dermatologists and to a certain extent to other members of the profession. The type which has most commonly come under the author's observation has been undoubtedly a direct infection upon some vascular region, such as the lip, the side of the nose, or the cheek, and while the patient never considers the ulcer to be due to its real cause until explained, he has nearly always given a history of traumatism preceding the formation of the ulcer. Scratches by cats, razor cuts, any little break in the skin which after the appearance of the ulcer the patient in his mind goes back to some perhaps trivial incident or injury in that region; and yet following this clue one can usually find that at this or some similar time the patient has been in rather intimate contact with a tubercular individual, or he himself presents signs of pulmonary tuberculosis.

Consequently we have here a lesion appearing frequently after maturity and presenting various sizes, one or more plaques, usually one, of partly ulcerated and partly healed lesions of tuberculosis. The crusts are usually dark from an admixture of blood, thin and adherent, which when removed causes a fairly free oozing of the blood from the soft, ragged granulations beneath, and especially about the edges. The center of the crust is often free and partly floating in the shallow pool of pus covering the yellowish, worm-eaten base of the ulcer. The edges are more tender than the center; they are purplish in color and undermined, and are unhealthy and indolent notwithstanding the apparent freshness of the torn granulations.

If it is a group or patch of lesions, there will be soft scars in places and the bridges of healthy skin and tunnel sinuses as before mentioned. If the origin of the lesion is from a subcutaneous infiltration of tubercular masses, the scars are thicker and do not yield to tension, and when numerous as on the leg or arm, may cause a permanent deformity in limiting motion of the member. Usually these lesions are single, about

the size of a quarter, and situated most commonly about the face. They are susceptible of rapid and easy destruction and permanent cure by removal in various ways.

In the years that have passed, the term scrofuloderma was used to designate, as the author understood it, a peculiar constitutional diathesis of children born of tubercular parents, who carried upon their skin some signs of this disease. For practical purposes it embraces two forms, viz: lichen scrofulosus and the strumous ulcer. The first is not a true tuberculosis of the skin; at least, I do not think the bacilli have been found in the lesions, but the disease is practically confined to these subjects. It appears in the form of yellowish red papules a little larger than a pinhead. Later they fade in color, taking on a more dead-like brown, and when the papule disappears, leave a small stain of increased pigmentation. These papules are either single or in groups, slightly conical, and some even flat on top with a small scale attached. They are found chiefly around a hair follicle on the side of the neck and chest, in boys chiefly, from ten to seventeen years of age. The hair is often destroyed and a small pigmented scar remains. They itch but little and no scratch marks are seen as in eczema, neither are there any scales, as in lichen ruber and the punctate form of psoriasis. They are not angular, neither do they have the violaceous tint of lichen planus; but swollen glands, strumous ulcerations and the general health of the patient mark the hereditary type.

The Strumous Ulcer. This is not primarily a disease of the skin, that organ being affected secondarily by the extension of the disease from some subcutaneous focus, the most common manner being the softening and destructive ulceration of a tubercular gland making its outlet to the free surface. The slow process of the inflammation causes an adhesion of the gland to the skin and the entire mass becomes doughy, gets red, then purplish, then ulcerates. Secondary infection follows and the abscess secretes freely, while the skin edges of the sinus have no vitality and the tubercle infection spreads, usually in several directions, causing a type of tuberculosis cutis. Where, however, the skin is affected by the ulceration of an independent tubercular nodule or infiltrated mass instead of a gland, the resulting lesion is somewhat different. Here you have also the indolent purple edges, but the ulcer is not so deep, there is not much discharge. There may be many openings upon the skin which is undermined. The edges of the ulcer are ragged, with a grayish, worm-eaten base, and bridges of skin, sometimes healthy, lead from one opening to the other, under which probes may be passed. It is tender and bleeds easily. From the tubercular osteo-myelitis the sinus is usually single, except in very old cases.

While lupus vulgaris and tuberculosis cutis rarely affect the general health except when extensive in childhood, many of these patients are supposed to ultimately die of tuberculosis. This percentage is difficult to ascertain, and yet it has not been infrequently reported that a sudden exacerbation of the process in the lupus patch has been followed by general tuberculosis and death.

Tuberculosis Verrucosa Cutis: In this form the usual manifestations have been upon the hands or in one case the sacral regions,—most commonly the former, and in three cases out of five in the author's observation, they have been situated upon the thumb, affecting the dorsal surface. They presented the hypertrophied villous elevation with very scant secretion, more or less scarring and clearing in the centre; the edges alone partaking of active cell proliferation. These lesions are usually dryer and more indolent than any of the types of tuberculosis cutis, and in their destruction it is frequently necessary to go somewhat deeper with whatever agent employed than in the others.

Tuberculosis of the mucous membrane has been very rare, from the author's experience, so far as their limitation has been to the lips and to the mouth. They appear about the lips as shallow, jagged, very superficial, worm-eaten ulcerations, not crusted, the floor looks granular and a dirty yellow. This yellow is caused by the miliary tubercles mixed with fat granules, especially in the lips. Sometimes you may see the pure tubercle, previous to ulceration, upon the lower lip as if studded with jelly white miliary masses glistening through the mucosa.

The tongue is sometimes affected, but here the edges are harder and more painful. When they occur about the mucous membrane of the genital organs, particularly in women, they tend to crust, a thin, greenish black scale or film being formed; they bleed easily and are more painful than any other form of tuberculosis of the skin. The anterior pillars of the fauces have been affected in several of the author's patients, and particularly a small area well down and in front of the tonsil towards the base of the tongue, presenting a partly glazed, partly ragged, grayish ulceration, far more tender than syphilis and creating a sensation of a foreign body and a constant desire to swallow. In several of these patients of this particular type there has been a mixed syphilitic infection, but the presence of tuberculosis pulmonalis, extreme tenderness and pain and failure to yield upon syphilitic treatment, have rendered them in his mind of tubercular origin.

While this paper is not supposed to deal with the treatment of these lesions, the author would remind you that any application or any method of treatment which irritates and does not destroy the diseased tissues is detrimental to the cure of the disease; that the great majority of the patients may be cured where the configuration and location of the lesion permit, by the use of such destructive chemicals as are used for superficial epithelioma, by the use of the sharp curette followed by the actual cautery, by the use of carbon dioxide snow, and even in many instances by the prolonged use and constant contact of a strong mixture of salicylic acid and creosote, or with the X-rays for such lesions as occur about the eyelids or the lips.

THE INTERRELATIONSHIP BETWEEN THE MOTOR AND SECRETORY FUNCTIONS OF THE STOMACH.*

By R. S. LAVENSON, M. D., Los Angeles.

Until within very recent years the motor and the secretory functions of the stomach were looked upon as distinct processes more or less independent of each other. The work of Cannon, Tobler, O. Cohnheim, Grutzner, Prym and others has, however, shown these two functions to be closely related and in fact to be mutually dependent upon each other. I believe, nevertheless, that the interrelationships between the secretory and the motor functions of the stomach when either one of these functions is disturbed, are not generally understood and their significance in gastro-intestinal medicine not fully comprehended. It is for these reasons that I beg to present to you some of the more important features in the relationship between gastric secretory and motor functions.

Since a proper understanding of the relationship in pathological states is possible only if the normal functions are well understood, I shall beg your indulgence while I briefly review the mechanism of the normal pyloric reflex, for it is through the medium of this reflex that most of the secretory and motor functions of the stomach find a relationship.

Normally when food enters the stomach the pylorus closes and remains closed until a favorable amount of acid gastric juice has collected in the pyloric antrum, when it opens and permits the acid contents of the antrum to pass on into the duodenum. We thus see that an acid reaction on the gastric side of the pylorus and an alkaline reaction on the duodenal side causes the pylorus to open. When now the acid contents of the pyloric antrum arrive in the duodenum the pylorus at once closes. This occurs regardless of whether the reaction on the gastric side of the pylorus is alkaline, neutral, or acid. We see, then, that an acid reaction prevailing on the duodenal side of the pylorus, regardless of the reaction on the gastric side, causes the pylorus to close. The arrival of the acid contents in the duodenum has another effect. Through the medium of the hormone, secretin, it causes a flow of pancreatic juice. This juice, alkaline in reaction, assisted by the alkaline bile, and *succus entericus,* neutralizes the acidity of the contents recently arrived in the duodenum, and soon the reaction in the duodenum again becomes alkaline, whereupon the pylorus opens. We thus see that when an acid reaction prevails in the duodenum, the pylorus closes, and when an alkaline reaction prevails the pylorus opens. On the other hand, an acid reaction in the stomach is conducive to opening of the pylorus and an alkaline reaction to its closing. The reaction prevailing in the stomach is, however, entirely subordinate to the reaction in the duodenum; when the reaction on both sides of the pylorus is the same, that on the duodenal side determines the action of the pylorus; when the reaction on both sides is alkaline, the pylorus opens; when it is acid on both sides, the pylorus closes.

In discussing the interrelationships in disturbed gastric secretion and motility, we shall consider first, those conditions in which secretion is primarily disturbed, the acidity either increased or decreased; those conditions in which the motility is primarily disturbed—that is, in which for some reason independent of the gastric or duodenal reactions, the pylorus is permanently or spasmodically contracted or tends to become too greatly relaxed. Finally we shall discuss those conditions in which the propulsive powers of the gastric wall are either too powerful or too weak.

To take up first those conditions in which there is excessive gastric acidity, it is hardly necessary for us to consider the question of whether a gastric juice of more than normal acidity is secreted or more than the normal amount of juice of the normal acidity. The resulting condition is the same, an acidity of the mixture of foodstuff and gastric which is greater than normal. We have seen that when a portion of the gastric contents of normal acidity arrives in the duodenum it causes the pylorus to contract. A similar portion of excessive acidity would not only cause a more powerful contraction of the pylorus, pyloric spasm, but, on account of the fact that it will take the alkaline duodenal contents longer than normal to alkalinize these contents of excessive acidity, the pylorus will remain closed for a longer time than normal and the emptying of the stomach will be proportionately delayed. Both of these conditions, pyloric spasm and delayed emptying of the stomach, are frequent clinical manifestations in primary or neurotic hyperacidity. There are those,[1] it must be mentioned, who claim that pyloric spasm does not occur in simple hyperacidity and that its occurrence is indicative in all cases of the existence of gastric ulcer. I believe, however, on the basis of clinical observation and therapeutic results, that pyloric spasm does occur as a manifestation of hyperacidity.

It may be that the constipation so frequently observed in hyperacidity stands in some relationship to the delayed gastric motility, though in just what manner we do not know. On the other hand, we occasionally do find a marked tendency to diarrhea in hyperacidity, probably as a result of the irritating action of the excessively acid gastric contents on the intestinal mucosa.

Let us consider next the gastro-motor disturbances resulting from an insufficient secretion of acid. We have already learned that it is the arrival of the acid gastric contents in the duodenum that effects the closure of the pylorus. If the stomach secretes no acid or only a deficient amount of acid, the natural stimulus to the closure to the pylorus is wanting and the gastric contents are thus allowed to pass more or less uninterruptedly into the duodenum. This rapid emptying of the stomach is a phenomenon of great importance in anacidity and *achylia gastrica.* It is in fact so important that its absence in the presence of a complete anacidity is strongly suggestive of the exist-

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

ence of some obstruction, usually of a malignant nature, involving the pylorus. I distinctly recall two instances in which a delayed emptying of the stomach in the presence of an *achylia gastrica,* first strongly directed attention to the probability of the existence of carcinoma of the pylorus, a condition that was subsequently found to exist in both instances. It is in all probability this rapid discharge from the stomach into the intestines of food masses unfitted, thermally, physically and chemically, for intestinal digestion that produces the diarrhea so frequently encountered in non-malignant *achylia gastrica.*

The conditions in which the pylorus, by reason of either structural or functional derangement, serves as a source of obstruction to the free passage of contents from the stomach into the duodenum, are numerous. The more important are benign stenosis, intestinal and biliary disorders, gastric ulcer, and various gastric neuroses. The influence upon secretion of such an organic or functional obstruction is observed in the gradual accumulation of more and more gastric juice after the ingestion of food, resulting in a hyperacidity or a digestive hypersecretion, a condition well expressed by the term "obstructive" hyperacidity or hypersecretion.

I have for some time, as a result of several cases which came under my notice, entertained the belief that cases of gastric ulcer in which the ulcer is located near the pylorus are especially accompanied by this tendency of the pylorus to go into spasm, and that these may consequently be the cases of gastric ulcer in which hyperacidity is a prominent symptom. At my suggestion some statistical observations are at present being made upon this point, and I hope before long to be able to report upon it.

A primary lack of tone of the pylorus is a condition of which we know but little. It has been described in cases of rigid pylorus where there was both stenosis and insufficiency. In such cases, the effect upon secretion will depend upon whether the stenosis or the insufficiency is the predominating motor disturbance. Frequently the pyloric atony is associated with a general gastric atony and here again the secretory picture will depend upon the seat of the greater motor disturbance. When atony of the pylorus exists unassociated with general gastric atony, the same secretory disturbances will result as occur in the next condition to be discussed, excessive activity of the propulsive gastric musculature without pyloric stenosis, for it can be readily seen that the same mechanical effect upon the gastric contents must ensue when an atonic pylorus with a normal propulsive activity exists as occurs when there is a normal pylorus and a hypertonic propulsive mechanism. In each case there is a balance of power in favor of the propulsive mechanism.

The influence that these two motor abnormalities have upon secretion is both intricate and interesting. To completely understand this condition it must be recalled that the gastric acidity as we ordinarily determine it, is the resultant of the mixture of a certain amount of ingested food with a certain amount of gastric juice. Let us assume that normally the gastric acidity results from the admixture of, say four units of ingested food with four units of gastric juice. The four units of ingested food are introduced into the stomach within a comparatively short space of time. If immediately upon introduction of this material into the stomach, an excessive propulsive activity commences to move the gastric contents in unusually large quantities into the intestines, what results? A considerable portion of food, say three out of the four units, is moved on into the duodenum. As yet, however, very little acid has been secreted. The stimulus has been delivered for the secretion of four units of gastric juice, but only a small portion, say one unit, has been secreted by the time the three units of the food contents have been passed on into the intestines. What results? We shall have remaining in the stomach but one unit of foodstuff and three units of acid, gastric juice. If now the stomach tube is passed and some of the contents removed and analyzed, its acidity will be found to be excessively high and, though only the normal total amount of acid juice was secreted, a hyperacidity will naturally be diagnosed.

We thus see that we may have hyperacidity resulting from two entirely opposite conditions—stenosis of the pylorus and insufficiency of the pylorus. In one particular, however, these two hyperacidities differ. In the case of stenosis or spasm, the percentage acidity and also the total amount of acid is increased; in insufficiency the percentage acidity is increased, but the total amount of acid is normal or decreased. For this reason, Schutz [2] claims that in all cases of hyperacidity we should determine not only the percentage but also the total acidity. There is no doubt that his claim is thoroughly justified. Though a percentage hyperacidity exists in the two conditions, they differ absolutely in nature, and unless they can be differentiated on the basis of other phenomena, this must be done by means of an estimation of the total acid.

Discussing finally the secretory disturbance in gastric atony, that condition in which the gastric propulsive power is deficient, it must be noted that in a large percentage of such cases there is some secretory disturbance caused by the same factor as induces the atony. If, however, atony occurs unassociated with primary secretory disturbance, the same mechanical interference with the movements of the gastric contents occurs as does in pyloric spasm or stenosis—the balance of power is in favor of the pylorus and a collective hyperacidity or hypersecretion results.

Finally it must be remarked that there are abnormalities of motility and secretion in which no laws of relationship or mutual dependencies can be observed. These are conditions in which the central control of the gastric functions has become abolished, such as the so-called "Chorea of the Stomach" of Leven [3] or the "Pyloric Arrythmia" of Hausmann.[4]

Summarizing the foregoing remarks as well as possible, I should say:

1. That secretory disturbances of the stomach usually induce motor disturbances through the medium of the pyloric reflex.

2. That motor abnormalities of the stomach usually induce secretory disturbances through interference with the mechanism of the propulsion of the gastric contents from the stomach into the duodenum.

3. Hyperacidity or hypersecretion induce pylorospasm and delayed emptying of the stomach.

4. Hyperacidity and achylia gastrica induce a rapid discharge of gastric contents into the duodenum.

5. Pylorospasm or pyloric stenosis induce hyperacidity or hypersecretion, which conditions may be well described by the terms "Obstructive Hyperacidity" and "Obstructive Hypersecretion."

6. Insufficiency of the pylorus and hyperactivity of the propulsive gastric mechanism induce hyperacidity.

7. Gastric atony frequently induces hyperacidity or hypersecretion, which conditions may be well described by the terms "Collective Hyperacidity" and "Collective Hypersecretion."

8. Hyperacidity may result from a spastic or stenotic pylorus, from an insufficient pylorus or from gastric atony. In stenosis or spasticity of the pylorus and gastric atony, the hyperacidity is accompanied by an increased total amount of acid. In insufficiency of the pylorus the hyperacidity is accompanied by a normal or decreased total amount of acid.

9. In determining the motor disturbance responsible for a hyperacidity, it may be necessary to determine the total amount of acid secreted.

Discussion.

Dr. R. L. Wilbur, San Francisco: The only thing I want to call particular attention to is the matter of getting the total acidity of the entire contents of the stomach instead of testing for it in a few cubic centimeters as is ordinarily done. I think our conclusions are often very unsatisfactory where we do not test for the total acidity by one of the methods where the stomach is washed out carefully and the acidity of the washings, together with that of the original contents noted.

Dr. T. W. Huntington, San Francisco: Having had frequent opportunity to study living pathology as seen upon the operating table, I am impressed with the fact that, in spite of all our special and official aids and in spite of the knowledge which comes to us through the chemical laboratory, we are often unable to reach a final decision, without opportunity of ocular inspection of organs involved. We are enjoined to observe and observe; to investigate and investigate, but to these injunctions there should be added another word of significance; observe wisely and investigate wisely. There is a danger lest in our enthusiasm for laboratory and clinical study of the patient we let pass the golden opportunity for radical intervention. I question the propriety of protracted study of the patient who presents an early clinical history of gastric cancer; nor do I believe there should be long delay when confronted by tolerably complete evidence of pyloric stenosis. In a word, the most interested person, the patient, has a right to know, very early, whether he can escape impending death, or be relieved from a long period of invalidism through surgical intervention.

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ORBITAL ENDOTHELIOMA—REPORT OF CASE.*

By P. A. JORDAN, M. D., San Jose.

On August 16th, 1911, there came under my care Mrs. J. O., aged 55, complaining of intense left-sided neuralgic pains. She was a perfect picture of chronic intense suffering, with pinched face, subdued voice, and demeanor resigned to suffering. She was willing to undergo any form of treatment, or any surgical procedure, provided it gave the semblance of a promise of even a little relief. She gave a history of having been treated by many physicians, surgeons, and specialists, since her trouble began, four years ago.

On examination I found the following: O. D. good vision; O. S. totally blind for one year; T—N, vitreous cloudy. Fundus not clearly seen. Nose—right nostril, O. K., excepting septum, bulging to right, in ethmoid region. Left nostril—complete impaction of middle turbinate against septum.

Without a complete history, at the time, I suggested the removal of the middle turbinate, and sufficient amount of the ethmoid body to warrant freedom from pressure, expecting relief from the neuralgic pains. This was done by Dr. Swaze, at my suggestion. On December 1st, I, for the second time saw this patient. The middle tubinate had been removed, the pressure relieved, but the intense pain was as severe as ever, and the patient was taking three grains of morphine per day. Owing to peculiar family relations, it was impossible to give the patient proper care at home, and difficult to transfer her to a suitable hospital. At this juncture I urged transference of patient to San Francisco, where neurologist, brain surgeon, eye, ear, and nose specialists might all work together to unravel the interwoven symptoms. Soon after, the patient was taken thence, where the following operation was performed in Lane Hospital:

Under general anesthesia, an accommodating flap of about two and one-half inches in diameter was made in the fronto-temporal region, which should allow examination of the region at the apex of the orbit, by lifting up the frontal lobe, and also should allow removal of the Gaserian ganglion. No pathological findings at the apex, in the region of sphenoidal fissure; and an ineffectual attempt to remove the Gaserian ganglion was made. The orbit was then exenterated. In the apex was found a tumorous mass, filling about the posterior one-third of the orbit. There was found to be no bony wall between the orbit and nasal cavity. Microscopic examination showed the tumor to be endothelioma. The patient made an uneventful recovery, but still has very marked left neuralgic pains.

At the time of the operation, I learned an important point in the patient's history, not known to me before; namely, that early in the disease there had been marked proptosis of the left eyeball, with accompanying swelling and extreme pain. Some time later, after having visited San Francisco, she experienced a gush of fluid from the left nostril, with a prompt relief of pain, and lessening of swelling of the eye, which soon after

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

assumed its normal position. There was very likely at this time a tumor in the orbit, impaction of the middle turbinate and ethmoid body, closure of exit to frontal sinus, and retention of fluid in same. The gushing of fluid followed subsidence of swelling, and thus relief from pain.

I wish here to enter a kindly criticism against the manner in which this and similar patients have been handled. Is there not here a suggestion of lack in the co-operation of brain surgeon, neurologist, rhinologist, and ophthalmologist? Had these different specialists each done their duty in complete harmony with every other one, in my judgment, this patient would have been saved two or three years of intolerable suffering, by an early and correct diagnosis, followed by correct treatment. (Patient exhibited.)

Discussion.

Dr. P. de Obarrio, San Francisco: It seems to me evident from the history of the case that a lack in proper examination of the patient has been the cause of a faulty diagnosis, and the lack of a proper diagnosis has been the cause of what I consider to be a disastrous treatment. In these cases there is no reason to lose the eye. The tumor could have been enucleated without the necessity of this eye being lost. Larger tumors than this one have come out and the eyes have not been lost. I have presented to the San Francisco County Medical Society on Jan. 23rd, 1912, the report of just such a case. The question of exophthalmus has undoubtedly not been taken into consideration in this case. The moment there is an increase in the volume of the tissues of the orbit there must be exophthalmus and the direction of this exophthalmus will show the location of the tumor and such investigation was not done. It seems to me that there should have been a co-operation between the surgeon and the specialist in this case and it is certainly up to the specialist to furnish information to the general surgeon if he abstains from interfering.

Dr. Cullen F. Welty, San Francisco: When a brain operation is contemplated on a case that has had cerebral manifestations for a long period, every available measure should be used in perfecting your diagnosis prior to operation. In such a case as the Doctor reports it is almost criminal negligence to do a brain operation without having the eye findings. Had this examination been made, the patient would not have been subjected to the brain operation.

Dr. Harrington B. Graham, San Francisco: I saw the operation upon this patient and one thing that impressed me was the way the sphenoid was reached. Dr. Stillman. had no trouble in taking out the anterior wall of the sphenoid from the orbit and I make mention of this in a later paper. Another interesting thing that I noticed was that there was no inflammation of the ethmoids. It is easy to criticize after you have the pathological condition given you as this case has demonstrated. The probabilities were in this case before operation that it was an intra-cranial growth. I am not enough versed in the diagnosis of retro-orbital growths to be competent to criticize Dr. de Obarrio's statements. I know something about intra-nasal growths and I know that Dr. Welty is entirely wrong. I examined the patient intra-nasally and found no evidences that the ethmoids were involved at the time of the operation, so Dr. Welty's remarks are unnecessary. The operation was done by Dr. Stillman with as complete a knowledge of the case as I think could be obtained. I do not think that Dr. Stillman should be criticized so severely for undertaking an operation which in his judgment was indicated at the time. When he found the growth was not an intra-cranial growth he did the next best thing and I think he is justified in that.

Dr. Geo. W. McCoy, Los Angeles: With diagnosis of malignant tumor in the orbit back of the eyeball, the sacrifice of the eye ought to be made, as these growths are so prone to recur. So in this case I think the removal of the eyeball was imperative, especially as sight was gone. In such cases if operative procedures are undertaken I think they should be radical.

Dr. P. A. Jordan, San Jose: In the first place I wish to clearly establish my own position with relation to the patient. I had seen the patient but twice prior to the time of operation and at both these visits I was only consultant. My hands were tied because of the peculiar home surroundings of the patient. All my dealings with the case were during the last 6 or 8 months. From stories I have gathered from the patient and other sources it would seem that 3 or 4 years ago when the trouble began, there was some trouble present in the ethmoid region pushing the middle turbinate against the septum, closing the exit of the frontal sinus, with all the pain accompanying that such conditions might cause. At this time the physician who had her in charge should have found the nasal trouble at once and should have operated and this should have led him to locate the tumor whether ethmoidal or orbital. It may have originated in the ethmoid or it may have originated in the orbit. At any rate no bony wall separated nasal and orbital cavities at time of last operation. With this as the starting point it seems to me that the trouble should have been traced to its origin and removed. The patient would thus have escaped 3 or 4 years of intolerable suffering. I criticize myself for not having gotten more deeply into the truth of the matter, but the handling of the case was difficult as the family surroundings were such that I could not get control of the case and it was difficult for the specialist, the neurologist and the general surgeon to properly work together.

A REPORT OF TWENTY-EIGHT CASES OF TROPICAL ABSCESS OF THE LIVER.*

By REA SMITH, M. D., Los Angeles.

Abscess of the liver is so serious a complication and so frequent a termination of amebic dysentery, that I have taken the liberty of bringing before you the following report of twenty-eight cases of liver abscess that have occurred in our practice in Los Angeles during the last ten years. One of these cases developed in Goldfield, one at Mojave, one in Arizona and the remaining twenty-five came from Mexico for surgical treatment after the disease had been diagnosed and the patient referred to us by the local physician.

Of these cases, one had a spontaneous cure by discharging through a bronchus following rupture through the diaphragm. The rupture occurred on board the train while en route to this city and he was sent directly to the hospital, coughing and expectorating liver pus.

One died of rupture into the lung before he could be moved to a hospital after being first seen by me, and two were moribund when admitted and died before any surgical relief could be afforded.

Two patients had early acute infections with

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

enormously distended livers and a great deal of thin bloody fluid. They were both operated upon in extremis; one died the day of the operation, one four days later.

One patient was operated upon in the face of general peritonitis, which had followed aspiration of the liver, in the country, before he came under our care. His abscess was drained, but the peritonitis was not affected thereby, and he died on day following the operation.

Of the remaining twenty-one cases of abscess seen between the initial acute infection and the terminal stage, 4 died and 17 recovered. A mortality of about 19% for the 21 cases, and mortality of 29.16% for the series of 24 cases operated upon. Two of these patients died of amebic abscess of the lung, one 6 weeks, and one 2 months after operation. These abscesses were metastatic with no perforation of the diaphragm. At autopsy in both cases the liver abscess was found to be a sinus the size of the tube, the cavity in each being healed.

One patient died of starvation from a duodenal fistula which developed several days after operation and was probably due to pressure necrosis produced by the drainage tube, which was necessarily placed well back on the inferior surface of the liver as the most favorable point for opening.

One died of pulmonary hemorrhage in a lung abscess that had been present at the time of operation. This patient had been under observation for some weeks, with lung abscess following rupture of liver abscess into the lung, and as he continued to lose ground we drained both liver and lung abscess through the liver. His condition improved markedly for about two weeks, at which time he had a fatal hemorrhage, demonstrated at autopsy to be from a vessel in the lung.

Clinically these cases fall naturally into two groups.

First: Those with a large quantity of pus developing in the lower segment of right lobe, and pointing downward, with the liver adherent to the abdominal wall below the margin of the ribs. The indication for opening at this point is obvious and the procedure extremely simple. Two of this series fall in this group and both had uninterrupted recoveries.

Second: Those with an abscess confined to the liver, with the liver movable; 19 of this series fall in the 2nd group. In all of these cases we opened the abdomen without the preliminary use of the exploratory needle, located the abscess by palpation, and arranged for free drainage at the most accessible point. We found all of these abscesses high in the right lobe, many of them lying close to the diaphragm, with the one exception mentioned, followed by a duodenal fistula. Unless the liver was adherent at some point to the peritoneum, we treated them by removing the 9th and 10th costal cartilages at the upper angle of the abdominal incision, stitching the parietal peritoneum to the liver and allowing an interval of 48 hours for adhesions before opening the abscess. If the liver was found adherent firmly to the peritoneum, the point for drainage was easily located from within, and the abscess immediately opened by an incision opposite this point, with the removal of a section of rib. In one case, we removed a section of rib, opened and sewed off the pleural cavity, split the diaphragm and drained the abscess without post-operative complications.

We have had no instance of peritoneal infection following the abdominal exploration, and we have gained a positive knowledge of the location and the extent of the abscess, which has made it possible to complete the operation, to open and drain the abscess with safety. The only case of peritonitis that we have seen, was the one reported, following the introduction of a needle between the ribs for diagnostic purposes, before coming under our care.

With a hand in the abdomen, the abscess in the liver can always be detected by a characteristic induration of the liver tissue overlying it, with or without fine adhesions to the parietal peritoneum, depending upon the depth of the pus from the surface. Following the incision and exploration (with the whole hand lying flat upon the liver) the field can be isolated with gauze and the abscess aspirated, as the needle is withdrawn, a small gauze trailer packed down to the wall will prevent leakage and preserve a track to the abscess for future guide. The lower end of the wound can then be closed and the field protected with gauze for immediate drainage, or the peritoneum of the upper angle of the wound can be loosened from its abdominal attachment and sewed down to the liver and the wound closed, with the exception of the exposed patch of liver; 48 hours later, the abscess can be opened with long forceps, without anesthetic.

It is to be remembered that the wall of an old liver abscess is very hard and very thick and extremely difficult to penetrate with a blunt instrument, and until such a membrane has been penetrated, the abscess has not been opened. We have never had any bleeding that a gauze pack would not control, even when 5 or 6 inches of liver tissue had to be traversed before the abscess was encountered. The pus is very thick and the caliber of the drainage tube must be large and the walls heavy enough to withstand a good deal of pinching at the point of entrance into the abscess cavity. I prefer the two stage operation whenever possible, because by isolating the small area of liver overlying the abscess from the general peritoneal cavity, it is possible to do away with the large gauze packs and the resulting tedious aftermath of a large infected wound, although I am sure that the general cavity can be protected with gauze and the abscess opened at the time of the original operation with safety to the patient. We have done this whenever a spot on the liver overlying the abscess could not be stitched to the parietal peritoneum.

We have not encountered the difficulty so often described in stitching the peritoneum to the liver, since we gave up trying to bring the liver up to the wound. If the peritoneum be loosened from the fascia for a distance of an inch or an inch

and a half around the margin of the wound, its edges will drop down upon the surface of the liver without tension, and a few catgut sutures will hold the two surfaces together without danger of cutting through the liver tissue. Enough pus can be removed with the aspirator after isolating the field, to relieve the tension and the urgent symptoms, and at the end of 48 hours the liver and peritoneum will have become so firmly adherent as to stand all the manipulations necessary to open and drain the abscess.

We have had none of these patients complain of pain during this second step of the operation, except at the actual time of penetrating the abscess wall, and we have not found it necessary to give a second anesthetic in any case.

To my mind the greatest danger to these patients lies in the tendency of the abscess to perforate through the diaphragm, or for the infection to be carried either by the blood stream or lymphatics to the lung, with the formation of a secondary lung abscess. A cough developing in the course of liver abscess should be an indication for immediate operation, unless it can be attributed plainly to causes other than a beginning lung involvement secondary to the liver infection. Both of our cases of lung abscess following drainage of the liver, had persistent cough and blood tinged sputum with râles at the base before operation, and both died of slowly progressing abscess of the right lung. I am convinced that this complication can be avoided in spite of the close proximity of the lung to the abscess, if the patients are operated upon before the extension has taken place; by placing them in Fowler's position immediately after operation and maintaining this position until the abscess is healed. After the lung has become infected, we have not been able to stay the slow development of this process. An incision through the chest wall directly into the invaded lung in an effort to drain the abscess, in one case, was not successful, because the thick gelatinous contents of the abscess would not drain.

Only two cases of this series had diarrhea or showed ameba in the stools while under our care for the surgical treatment of the liver, although all showed ameba in the pus when the abscess was first evacuated. We were unable to demonstrate any other organisms in stained smears except in the case where a communication between the abscess cavity and the air passages had been made before the operation.

Among the 28 cases observed there was no instance of a double abscess in the liver itself.

Besides the cases of abscess reported, we have seen three cases which we believe to be amebic infection of the liver, recover without surgery. Rest in bed, continuous moist heat and diet being all that was necessary. These three cases seemed to be instances of the condition described by Leonard Rogers, as presuppurative amebic hepatitis.

In conclusion I would urge an abdominal incision rather than an exploratory puncture with needle in all cases of suspected abscess of liver. A negative result with the needle is of no diagnostic value, because of the depth of the abscess, in many instances, and the tendency of the needle to slide along beside the hard abscess wall instead of to penetrate, when inserted blindly. A positive result with the needle on the other hand, may be followed by peritonitis, if the needle be withdrawn, without the possibility of isolating the wound in the liver from the general cavity.

The high abdominal incision through the right rectus can usually be used for drainage as well as exploration; with the abscess high in the right lobe, the tube passing up and back drains the cavity from its most dependent point, especially if the patient be kept in Fowler's position when returned to bed.

Let me call especial attention to the fact that deep liver abscesses do not fluctuate, but can be detected with a hand on the liver surface, by a feeling of induration even through several inches of liver tissue, and that a large percentage of them develop from a focus high in the upper half of the right lobe, at such a point that perforation into the lung is the most probable termination, without surgical interference, and that the mortality of any surgical procedure is greatly increased, after the lung has become involved either by rupture of the abscess through the diaphragm or by extension through the lymphatics or blood stream.

Discussion.

Dr. W. V. Brem, Los Angeles: The first point of interest is that 28 cases of liver abscess should have occurred in the practice of one physician in Los Angeles and a second interesting point is that the majority of these cases came to him from Mexico. But a few of the abscesses did develop in the vicinity of Los Angeles. During the past six or seven months I have examined the feces of a number of patients who had amebas in the stools and who acquired them in or near Los Angeles. Amebic infection therefore does occur in that vicinity and the possibility of amebic abscess of the liver should be borne in mind. My experience with liver abscesses were gained in Panama. In Colon Hospital during the four years of my service we had about the same number of liver abscesses that Dr. Smith reported to-day—from 28 to 30. Dr. Smith's mortality was quite low. I think that is explained by the fact that his patients were probably in Mexico a long time before they came to Los Angeles, that is that they were the ones whose resistance was good enough to enable them to take care of the infection well. The others probably died during the acute stage and did not reach Los Angeles. The prognosis of course would be better in the former group of patients whose abscesses had reached the chronic stage with thick fibrous walls. Herrick, of Ancon Hospital, Panama, has classified liver abscesses into acute, subacute and chronic forms. The chronic are those with thick fibrous walls and the mortality is low in this group. In the group of the acute abscesses with thick necrotic walls and no fibrous tissue formation the mortality is high, and the patients die quickly with an extraordinary degree of intoxication usually on the second day after the operation. The condition does not seem therefore to be associated with any secondary infection. I do not know why they have such intense intoxication but one is tempted to think of a rapid absorption of some toxin from the necrotic walls of the abscess. I think Herrick's classification is very useful from the prognostic point of view. In diagnosis it is important too because the symptoms and blood picture in the

various stages is different. In the chronic stage the leukocyte count is considerably lower than in the acute stage and in the differential count the percentage of polymorphonuclear leukocytes is not so greatly above normal. In the acute stage you are liable to find multiple abscesses, while in the chronic stage the abscesses have coalesced or there was only one in the beginning. In Dr. Smith's series the two abscesses of the lung are also interesting. In all the experience in Panama (the number of cases reaching over 200) there were only two cases of abscess of the lung not connected by continuity with an abscess of the liver.

Dr. E. C. Moore, Los Angeles: The presence of amebiasis in the United States is more prevalent than we believe. In a recent conversation with some of my confreres in Los Angeles I learned that amebae had been found in from 20 to 30 cases. It is incumbent upon us throughout the United States to investigate this condition more than we have heretofore.

MECHANISM AND CLINICAL ASPECTS OF CHRONIC ARTERIAL HYPERTENSION.*

By R. L. CUNNINGHAM, M. D., Los Angeles.

In the human body the blood within the arterial system is normally under a pressure which varies, at the end of cardiac systole, from 110 to 125 mm. of mercury, as read by the ordinary sphygmomanometer from the brachial artery. This normal, or physiological, tension of the arteries is maintained chiefly by four factors,—(1) The force of the systolic contraction of the heart muscle; (2) The peripheral resistance in the smaller vessels; (3) The elasticity of the vessels through which the blood passes; and, (4) The amount of blood held within the vessels. Two accessory factors may be taken into account in addition to the four just mentioned,—the respiratory movements of the thorax, and the contraction of the skeletal muscles. Venous pressure is dependent upon arterial pressure, modified by certain other factors, and is not related directly to our present subject. We are here concerned with the matter of arterial tension alone, because that side of the circulation is the one most easily studied and also the one which probably gives us the most accurate knowledge of all the phases of the subject.

It is well known that the normal arterial tension varies for different individuals, and that it also varies, within certain more or less restricted limits, for the same individual, being affected by such habitual changes as rest and exercise, ingestion of food and starvation, sleep and mental excitation, etc. These are the so-called physiological variations, being common to all individuals, and they may be considered as without special clinical significance. On the other hand, when a variation from the usual becomes either permanent or very marked in degree, it can no longer be classed as "normal" or "physiological" and is then necessarily of clinical importance. Such "pathological" deviations are of two kinds: hypotension, a lowering of the blood pressure; and hypertension, an elevation of the blood pressure.

Physiological variations in blood pressure are always due to a transient modification of one or more of the factors mentioned above as controlling intra-arterial tension, and the active causative agent is usually readily discovered. Pathological variations are likewise due to modification of one or more of the same controlling factors, with this difference, that here the action is not merely temporary, but is permanent in its influence, and is not always so readily discoverable. Both classes of deviation in the direction of hypertension are, as a rule, purposeful and conservative. Hypertension has been studied less thoroughly and does not yet possess the clinical interest which attaches to the opposite change.

When does the term hypertension begin to be applicable? It is hardly possible to designate a definite line of demarkation between the normal and the abnormal pressure, but, in a general way, we are inclined to call any reading excessive when it passes 135 mm. of Hg. for we doubt the occurrence of a continued pressure above 130 mm. in a sound individual, it being understood that the normal reading for the instrument used is in the neighborhood of 115 or 120 mm. Obviously hypertension can not exist as an entity, and the discovery of its presence is but a step in the search for a deeper and underlying disturbance of which it is merely one manifestation, and yet we commonly attribute to it certain symptoms, on the ground that they are in large measure dependent upon the elevated pressure. Always the primary cause is one which has affected one or more of the fundamental factors enumerated at the beginning of this brief discussion. We shall therefore consider the accepted explanation for the occurrence of hypertension in a few of its more frequent clinical associations, and later we shall look for the effects of the condition upon those parts of the organism most profoundly influenced by the rise in arterial pressure.

It is undoubtedly in cases of chronic nephritis that we meet with the highest readings of blood pressure, and particularly in that form of nephritis which is variously called "interstitial," or "granular" or the "genuine contracted kidney." Probably everyone has found pressures of 300 mm. or even higher in this group, though lower readings are far more common. The hard pulse has long been recognized in its association with nephritis and was mentioned by Bright in his writings, though he gave no satisfactory explanation of its production or effect. In 1856 Traube gave the question the first special attention, but he erroneously concluded that the rise in arterial pressure was due to the fact,—not really a fact at all,—that in nephritis less fluid is removed from the body by the kidneys and the flow of blood thus impeded by volume, results in an increase in the pressure within the arteries. At a little later date it was suggested that the rise is to be explained upon a purely mechanical basis of obstruction, since the narrowing of a great many small vessels in the kidneys might offer sufficient impediment to the flow of blood to result in elevation of pressure even though the amount of fluid re-

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

moved from the blood were as great as normal. This view was overthrown by the observation that the complete ligation of both renal arteries was not attended by anything like a similar rise in pressure. At the present time the best opinion would seem to favor the following view: Injury to a number of glomeruli and taubles of the kidney causes a diminution in the excretion of the urinary constituents; these abnormal substances circulating in the blood act as direct stimulating agents to the muscle of the heart and more especially to the muscle of the arterial wall, with consequent narrowing of the lumen of the vessels and hypertrophy of the myocardium, both of which changes contribute to the elevation of the blood pressure. The elevation is essentially purposeful inasmuch as the resulting increase in velocity of the blood flowing through the kidney gives rise to an increased secretory activity in the undamaged portions of the renal cortex in compensation for the preceding destruction of other areas. In this we see why there is so often an actual increase in the amount of urine secreted by an injured kidney, and especially an increase in the water rather than in the solid constituents. As Struempell puts it, "The hypertension is a result of renal insufficiency." The progressive development of this condition may be observed in cases of acute nephritis, which lends support to the view described. Urea is no longer looked upon as the important, certainly not as the sole cause of this change.

Arteriosclerosis can not justly be called an affection in itself; it is rather a part of a more general process which attacks a number of organs at the same time, but certainly the arterial thickening may be the most apparent and even the most important change in such a general disease. Here we can aptly apply the same theory of "obstruction" in explaining the hypertension which is invariably present. It is further observed that those examples of arterial disease in which hypertension is most marked are those in which the vessels are of the fibrous type as contrasted with the calcareous type and it is in these cases that symptoms are most marked. Later the kidneys are sure to be involved and their loss of function then dominates the picture, so that a purely sclerotic form of hypertension is uncertain, and therefore unimportant as compared with that from other combined factors.

In diabetes and gout arterial degeneration has been given the place of first importance in most all explanations of the hypertension which exists, but the later tendency is to lay more stress upon the influence of abnormal metabolic substances with their toxic effects as being directly responsible for the changes in the vessel wall. Whether the injury is a direct chemical injury or one which acts indirectly through the nervous system is undetermined. Hepatic cirrhosis falls into the same class and general metabolic change is undoubtedly the most important point in this affection, though the apparent and often considerable circulatory obstruction in the liver may be a factor of some significance in its tendency to produce hypertension in the arterial system as well as in its better recognized effect upon the pressure in the portal circulation.

Whether the so-called idiopathic cardiac hypertrophy can result in a permanent rise in intra-arterial pressure without the existence of changes in the vessels and kidneys is problematical. Struempell favors the view that it may and often does, and he would give to this condition the position of a clinical entity, while most other authors would place it in that large group of conditions to which the name of "cardiovascular-renal" disease has been applied descriptively. In the athlete, and a few analogous individuls, we do find an increase in the blood pressure which is attributed to the hypertrophy of the heart, especially in association with the "concentric hypertrophy" which affects the muscle of the whole heart but even here later developments change the picture and show us that the diagnosis was at best a temporary one.

As a rule moderate grades of hypertension give no symptoms. More severe degrees show themselves by signs or symptoms referable to one or more of three great systems,—renal, cardio-vascular, and central nervous system. It is not always possible, in fact it is usually impossible, to separate these systems, as a simple train of symptoms may involve all three, but in a measure, we can say that one or another is chiefly disturbed and at fault.

In so far as the kidneys are affected by the existence of increased blood pressure the result is beneficial so long as the heart muscle continues to act well, as an adequate secretion of urine is made possible by the increase in velocity of the blood passing through the kidneys. The secretion of a relatively large amount of urine of low specific gravity, with a mere trace of albumin and few casts, may be the only sign of renal insufficiency recognized locally. With failing compensation and the onset of myocardial degeneration other signs do develop, but they are due to the lowering of the pressure and relative stasis of the blood. On the other hand the intra-arterial pressure may be lowered when the normal renal epithelium can adequately compensate for the territory thrown out of function, which accounts for the common observation that a reduction in the amount of urine and a fall in blood pressure may denote clinical improvement. Albumin and casts should not be attributed to the hypertension; the three signs are rather correlated manifestations of renal insufficiency, and are not to be looked upon as inter-dependent.

In the arterial system we often look for marked and serious disturbances when the arterial tension is very high, but only when there is already some change in the vessel wall. Cerebral hemorrhage is common, and yet no conceivable elevation of intra-arterial pressure can rupture the wall of a normal vessel. The same is true whether it be applied to hemorrhage into the brain, meningeal spaces, retina, skin or from the nose, lungs or intestinal tract, all of which locations are at times subject to hemor-

rhage in association with hypertension. While simple fibrous thickening will be found to be more common in the presence of high pressure, atheromatous degeneration of the wall is more often associated with extravasation of blood in any locality.

The changes in the heart have already been touched upon. At first simple enlargement by hypertrophy, eccentric or concentric according to the underlying factor in the hypertension, and later dilatation of more extreme grade with valvular insufficiency, loss of muscle tone and actual myocardial degeneration. Once myocarditis is established patients seldom recover sufficiently to be free from symptoms of this vicious circle of the cardio-vascular-renal system. Precordial pain is not so common as is palpitation, nocturnal dyspnea and slight grades of edema of the extremities. The truly remarkable thing is that so many patients who have blood pressure up to 300 mm. may have no symptom referable to the heart until actual myocardial degeneration is far advanced.

To consider the central nervous system in its relation to arterial hypertension is beyond the possible limits of this discussion. We can but make a few statements without argument. Probably no mere functional disturbance of the central nervous system can give a permanent elevation of the arterial blood pressure. In certain affections in which the nervous system is profoundly disturbed without local change, as in Basedow's disease, the pressure may be high, but it is then due to other factors. As to symptoms referable to the nervous system and dependent upon the hypertension we might say much. Probably the numbness and paresthesias of the extremities may be explained upon the basis of vaso-motor and sensory nerve changes induced by the toxic substances which give rise to the hypertension rather than by assuming that the increased pressure is itself the cause. We may accept the statement that vertigo, loss of memory, mental deterioration, etc., are due to cerebral anemia (relative) and that they mark the first sign of circulatory failure, or we may believe with Dieulafoy that these are symptoms of uremia. Headache is probably due to an increase in the intracranial tension, though this leaves out of account that in one man, with a pressure of 175 mm. headache may be most troublesome, while another man with a pressure of 250 mm. or more has never felt it at all. In a man who recently came under our observation, insomnia was the only symptom noted by the patient, though his pressure was found to be 305 mm. at 4 a. m.

Conclusion. From the above incomplete survey of the field we are forced to the conclusion that chronic arterial hypertension is caused chiefly by the direct action of toxic substances in the circulating blood which act upon the muscular tissues of the heart and arteries; that the process is essentially purposeful and conservative as regards the organism as a whole, though ultimately injurious to parts of the organism; that it postpones the effects of earlier harmful agents, effects which would appear much sooner if the body had no such compensatory mechanism. Therefore, in broad terms, to attempt to reduce the degree of hypertension, without at the same time reducing the necessity for increased blood pressure, would be harmful to the organism as a whole, and would speedily render the kidneys incapable of exercising their function at all adequately. The mere fact that arterial tension is increased above normal is evidence that there is need of more than the normal pressure. One would never reduce, or try to prevent a physiological elevation in arterial pressure; no more should he attempt to bring the blood pressure in pathological states below the limit of efficiency. By rest and such other proper means as may be expected to accelerate elimination of metabolic products it is allowable to induce as much reduction of excessive tension as is safe for the individual, and the problem thus appears as an effort to effect a compromise between the conservative and the destructive results of arterial hypertension.

DIAGNOSTIC VALUE OF PASTIA'S SIGN IN SCARLET FEVER.*

By G. H. TAUBLES, M. D., San Francisco.

In May, 1911, the writer presented a paper before the San Francisco County Medical Society in which this newly recognized phenomenon in scarlet fever was discussed with the idea of confirming its presence as being sufficiently characteristic and sufficiently constant to entitle this sign to be enrolled among the list of clinical phenomena of scarlet fever.

To revert briefly to this former communication, the sign, as described by the discoverer, consists in an intense, continuous linear exanthem localized in the skin folds of the anterior aspect of the elbow. It is of a deep rose color becoming darker in time and after several days even ecchymotic. The lines vary in number from 2 to 4 usually and the skin between these lines presents the rash the same as on the rest of the body. To this description the present writer wishes to add two items: Firstly, the sign is occasionally visible in some or all of the other flexures as the base of the neck, wrist, axilla, groin, nates, popliteal folds; and secondly, the red stripes of the sign can be caused to stand out in striking contrast by exerting gentle pressure on the skin and then quickly removing the pressure, whereupon the skin surrounding the lines will be temporarily pale and the lines will be seen as intensely red.

It is the writer's intention to limit this paper to Pastia's sign alone and not to include the artificially produced red lines of Leede, as described by Hecht, Leede and Rumpel, for the reason that this latter sign can be produced in a great variety of cases and is not a natural phenomenon.

Our first consideration will be to identify Pastia's sign with scarlet fever. It has been found by a number of French and Roumanian investigators to be present in practically all of the cases of

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

scarlet fever seen by them since the sign was discovered.

In the writer's series of 73 cases it was present in every case. The sign has been simultaneous with rash in time of appearance and in about 80% of the cases has lasted from 2 to 3 weeks after the rash has disappeared. In all of the cases seen in our series the sign outlasted the rash by at least 3 to 6 days.

In cases definitely not scarlet fever the sign was seen in 3 cases of hemorrhagic measles, one case of angio-neurotic edema and in one case of Dr. A. A. O'Neill's of dermatitis venenata (poison oak). The measles cases were typical in every way as to history of exposure, mode of onset and appearance on examination. The stripes of the sign were instead of rose red, a deep rusty brown in color and with stippled edges instead of the linear appearance noted in scarlet.

The case of angio-neurotic edema as well as the case of poison oak presented no difficulties in the way of diagnosis and here again the sign was not typical in that there was an edema present, and by reason of structural differences, the skin at the folds merely showed pink lines similar to those which we can ourselves demonstrate by strongly hyperextending our fingers, whereupon the skin folds appear as bright pink lines against the tense white skin of the rest of the palm and palmar surfaces of the digits.

So much for the appearance of the sign in cases definitely not scarlet fever. Now let us complete the survey by considering those cases which may resemble scarlet fever and also the cases of atypical scarlet fever. Three cases of erythematous drug eruption, two due to iodine, and one due to morphine failed to show the sign. Two cases of so-called fish rash also did not present the sign. Two other cases of angio-neurotic edema did not have the sign visible. In fourteen cases of erysipelas the sign was not once seen. Two cases of antitoxin erythema did not show the sign. Two cases of diffuse acute generalized erythema with fever and gastro-intestinal disturbance, but without the usual sore throat or scarlet tongue and no history of contagion were isolated. They did not at any time present the sign and recovered in a few days without any subsequent desquamation.

In a personal communication Dr. Pastia informs the writer of several interesting cases. One is that of a child suffering from hemorrhagic purpura, who, after an injection of peptone, Witte, showed a scarletiniform eruption, including the sign. In this case isolation was justified because not only did the child desquamate but another patient caught scarlet fever from it. Another interesting case is one of erythema multiforme where in the course of a recurring attack the patient was noticed to present the sign. The diagnosis of scarlet was confirmed by the desquamation which followed and was typical of scarlet fever.

In our experience the sign has served with similar success in six cases where the rash was not typical. These cases presented instead of the usual punctiform rash more of the diffuse redness of an erythema scarlatinoides. By virtue of the sign these cases were isolated and proved by their subsequent course that the diagnosis of scarlet fever had been the correct one.

Again quoting from Dr. Pastia's letter he says that "At present in the contagious services in France this sign is given great diagnostic importance in those cases where the eruption is not quite typical and also in retrospective diagnosis, i. e., when the rash has disappeared but the sign remains."

Now to sum up the reasons for accepting this sign as one of diagnostic value: It is an easily identified feature of practically every case of scarlet fever; it is as well marked in the atypical cases as in the typical cases; it persists so that though the rash may not have been observed the diagnosis can yet be made after several days; its occurrence in other diseases has only been noted in such cases as can be easily differentiated from scarlet fever; it has great prophylactic value in those cases where the history or findings or both are otherwise doubtful, especially after the rash has disappeared and desquamation is not visible.

The writer takes this opportunity of expressing his thanks to Dr. A. A. O'Neill for his kindness in placing the material at the Isolation Hospital at his disposal.

Discussion.

Dr. D'Arcy Power, San Francisco: Only two months ago I had a personal experience that is illustrative of the value of this new sign. I was called to a little child seven years of age which suddenly developed a sore throat that looked like tonsilitis. There was a little nausea but nothing specific. As a matter of precaution I looked at the chest and noted what appeared to me a slight scarlatina rash and drew the attention of the parents to it, but was emphatically informed the child's skin always presented this aspect. The picture by itself was not sufficient to justify a diagnosis of scarlatina and I should undoubtedly not have done so had I not remembered reading of the Pastia sign and on looking at the skin folds in the arm, noted it fully present. I stuck to my diagnosis and was justified by the later history of the case.

CLINICAL ASPECTS OF UROSEPSIS.*

By M. KROTOSZYNER, M. D., San Francisco.

Various are the names and manifold the classifications under which infections of the urinary tract and systemic toxemias, due to one or more septic foci in the uropoetic system, are recorded in the literature. Guiteras' exhaustive text-book, for instance, which represents the most modern views on matters urological, deals with the subject under the different headings of "Urinary fever, Catheter fever, Urinary infection." Watson and Cunningham, to quote one more authoritative standard urological work, devote a brief chapter to "urethral shock or chill—urinary infection or urinary fever."

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

Similarly confusing is the classification under which this subject is treated in the rather scant contributions of our periodical literature.

It appeared, therefore, a grateful task to hit upon a name, which would embrace the subject in all its manifestations and phases, and, at the same time, be brief and suggestive of its most important features, viz: urinary infection and intoxication. After careful deliberation and an exhaustive search of the literature, pertaining to this subject, the name "Urosepsis" appeared to be the most appropriate, the simplest and the briefest technical term.

This name is, at present, given to a systemic septic condition, originating in the urinary tract and presenting the picture of a chronic urinary intoxication. The systemic toxemias caused by an ascending infection, due to stagnation of urine in the bladder, ureters and renal pelvis, or by insufficient renal elimination and absorption of toxins, result, as a rule, in the clinically well-defined septicemic condition, which is characterized by digestive disturbances, loss of appetite, a heavily coated tongue, marked general debility and irregular temperatures (septic fever). This characteristic complex of symptoms which is designated by good authority as "Urosepsis" is very frequently observed in old prostatics with ascending infectious processes of the upper urinary tract (ascending pyelitis, pyelonephritis and pyonephrosis). At postmortem examination these lesions, in most instances, represent the fatal cause or demonstrate the cause of failure of a belated prostatectomy. An equally grave form of urinary toxemia, on the other hand, may occur without renal involvement and as a result of absorption of urinary or bacterial toxins from one or more septic foci in the prostate or bladder. I have seen several cases of typical and prolonged urosepsis in elderly prostatics, where, on the autopsy-table, no or such insignificant renal lesions were found, that they alone could not be held responsible for the fatal outcome. It is, furthermore, obvious that a grave and frequently fatal toxemia may occur on the basis of a trauma of the urinary tract, through which urine may escape into the surrounding tissue, where it gradually, through stagnation and decomposition, will exert its toxic properties. Clinically these pathological conditions offer like or similar aspects and etiologically they belong to the same class on account of their origin from one or more infecting foci of the urinary tract.

We are, therefore, justified in combining all these infections and toxic conditions of the urinary tract under the collective term of "urosepsis" differentiating them with regard to their special or topical etiological features as renal, vesical, traumatic and so forth.

The most important cause of traumatic urosepsis is, obviously, instrumentation, and modern urologists are aware of the important role which it plays in producing local and systemic urinary infections. While it is conceded that by adherence to strict asepsis such infections can be numerically reduced to a minimum, we, nevertheless, occasionally encounter cases, in which the simple act of urethral catheterization, performed under the most rigid aseptic precautions, is followed by a grave and even fatal systemic toxemia.

A diabetic of 62 entered the hospital with complete retention due to acute prostatic congestion. Apex of bladder at navel. Gradual evacuation of bladder by means of a small-calibred soft-rubber catheter under laparatomy-asepsis. The same or similar aseptic measures are observed at each consecutive catherization. Symptoms of typical renal urosepsis set in within 48 hours from the first catheterization and the patient succumbs, within a week, to his ascending infection.

It is, on the other hand, a well known fact, that a notoriously "septic" catheterism must not necessarily be followed by untoward symptoms and even in these later days of widely spread knowledge of the value of asepsis, there are still many elderly prostatics immunedly using their catheters with very insufficient or no means of sterilization. Such and similar observations, which occur in the daily practice of every experienced urologist, prove that local and systemic urinary infections are not alone due to a flaw in the technic or asepsis of instrumentation. The real cause of infection lies, in all probability, in the existence of a *locus minoris resistentiae* somewhere in the lower urinary tract, like a slight abrasion or a minute trauma of the mucosa, through which the entrance and propagation of infecting microorganisms takes place. The toxic material is not, necessarily, brought into the bladder by means of instruments, the introduction of which merely hastens the outbreak and generalization of the preexisting septic focus. In this way the not very rare instances of acute and, occasionally, prolonged febrile reactions to delicately and most carefully performed instrumentation (traumatic or instrumental urosepsis) find their plausible explanation.

A married man of 42 had acquired an acute gonorrhea and was seen a day after an attempt to inject an astringent fluid dispensed by a druggist. Patient is slightly delirious, shows great prostration, heavily coated tongue, high fever. This condition gradually abated within two weeks. The patient came, many months later, under treatment for a chronic urethritis complicated by a stricture. Each attempt of instrumentation (steel-sound) is followed by high fever and malaise lasting several days. These attacks can be reduced in intensity but are not entirely checked by prophylactic large doses of quinine.

An urinary infection, in reality, does not as often, as it was thought heretofore, take place through mechanical interference or by contact-contamination, or ascending proliferation. Through the investigations of Guyon, Posner and Lewin, Wildholz, Brewer and others we know to-day that an urinary infection, in most instances, occurs by the hematogenous route. The kidneys are the dumping-place for the waste-material of metabolism, where these undesirable end-products remain longer than at other parts of the organism. If, then, by way of the circulation, pathogenic bacteria are thrown into the system, they will find in either of the kidneys with an insignificant lesion, a fertile soil for habitation and spread. The classical instance for this mode of infection is furnished by renal tuberculosis, which invariably represents an hemotogeneous and not, as is still tenaciously held in many quarters, an ascending infection on the basis of vesical tuberculosis.

A man of 32 was referred to me some years ago by a prominent genito-urinary specialist of New York, who had advised his client to remove to California for climatic purposes. Very frequent and distressing micturition, many tubercle bacilli in the urine-sediment. Cystoscopy reveals many ulcerations and tubercles. On account of the patient's extreme suffering and, after due counsel, the bladder-wall was scraped and the viscus drained through a suprapubic cystotomy. The patient rapidly becomes septic, delirious and uremic. Exitus within a few weeks from operation.

At the time of this observation Israel and Nitze still sounded their authoritative warnings against ureteral catheterization in urinary tuberculosis on account of the theoretically adduced danger of conveying tubercular virus from the infected bladder to a healthy kidney. To-day we know that the current of infection runs downward and practical experience has demonstrated in innumerable instances the innocuousness of bilateral ureteral catheterization in renal tuberculosis through a bladder that presents many ulcerated tubercular foci.

Other examples of hematogenous infection are the occurrence of a calculous pyelitis in the course of an aseptic renal calculosis or the metastatic renal infections from remote suppurative or inflammatory foci (panaritium, tonsillitis, etc.). In this connection the much-discussed coli infections of the urinary tract, probably caused by migration of normal intestinal inhabitants into the bladder or kidney deserve mention. It is proved that the so-called catheter-fever, which formerly was thought to be caused by shock, irritation of certain nerve centers, malaria, etc., is in most instances due to coli-infection. For the more protracted forms of traumatic urosepsis with a remittent fever and frequent attacks of chills, followed by profuse sweating we will justly assume a streptococcus-invasion. Such cases may take a favorable turn, but may occasionally terminate fatally.

A girl of 18 entered the hospital for incision of a suppurative gonorrheal bartholinitis. Complete euphoria after operation, therefore the patient leaves the hospital in spite of her profuse vaginal and urethral discharge. Reenters 2 weeks later with acute pelviperitonitis, cystitis and pyelitis. Urine-sediment shows B. Coli and streptococci in pure-culture. Exitus occurs within ten days under symptoms of cardiac insufficiency with repeated attacks of collapse, vomiting, singultus, dry tongue, delirium.

The gravest form of urosepsis, though, is the one which prevents either no or only moderate elevations of temperature and which is characterized, from the beginning, by digestive disturbances (abhorrence of food, especially of meat) distressing thirst, disturbances of deglutition and low or insufficient urine-excretion. This form represents a combination of urinary infection and systemic intoxication through the normal or decomposed urine. The toxicity of normal urine is, since the investigations of Bouehard and his pupils, a well-established fact. If the urine stagnates in the bladder and, through backward pressure upon the ureters and renal pelvis, interferes with the excretory function of the kidneys, absorption of urine-toxins and chronic urine-intoxication ensues. The early recognition of this condition, and the timely establishment of a free urinary flow (elimination of urine-toxins) by mechanical means (suprapubic fistula, prostatectomy, etc.), are most grateful therapeutical procedures.

A man of 64, in the third stage of prostatism (dribbling from overdistended bladder) shows marked symptoms of urosepsis. Irregular low fever-curve, dry tongue, continuous thirst, lack of appetite, slight mental aberrations, and marked cachexia. Drainage through a suprapublic fistula, under local anesthesia, results in improvement of uroseptic symptoms; therefore, 4 weeks later, enucleation of protruding median prostatic lobe under spinal anesthesia. Pathological report: Carcinoma of prostate. After a brief period of improvement the patient gradually relapses into a semi-comatous condition with marked uroseptic and uremic symptoms. Exitus.

A prostatic of 74, with advanced urosepsis and almost complete retention, continues in this condition, after suprapublic prostatectomy under spinal anesthesia, for many weeks. Various stages of exacerbation and remission of uroseptic symptoms (irregular temperature, digestional disturbance, slight coma). Gradually uroseptic symptoms abate. complete recovery.

In conclusion I beg to present the following classification of infections and toxic conditions of the urinary tract, which appears to be in accord with our modern views on that subject:

It is proposed to combine all these conditions under the collective term: "urosepsis."

According to the clinical course urosepsis may be divided in the acute, subacute and chronic form.

According to the topical etiology a urethral (prostatic) vesical and renal form may be differentiated.

Other prominent types of urosepsis are the traumatic (instrumental) and bacterial (coli, streptococcus, etc.), forms.

REPORT OF AN INTERESTING CEREBRAL CASE.*

By CULLEN F. WELTY, M. D., San Francisco.

Woman, age 35, Russian. Has been in good health since childhood. Has had a discharge from the ear for the past thirty years, has had pain in the ear and back of the ear many times. The pain back of the ear and on this side of the head has increased in frequency and severity. For the past three weeks has had so much pain on this side of the head that she has been unable to sleep. No vertigo or nystagmus.

Examination—Sensitive to touch over the whole side of the head, painful on the slightest pressure and exquisitely so over the tip of the mastoid. Foul, offensive discharge, destruction of the entire membrane. Epithelium and debris washed from the attic by the intra-tympanic canula. Caloric reaction, positive. Cochlea intact. Recommended immediate operation. Would not submit to operation, pain entirely subsided in the course of a week. There was an interval of probably two months in which there was no pain or discomfort of any kind. Following this, pain suddenly became very intense in the occiput which lasted about two weeks before she consulted me.

Second Examination—Mastoid not painful to superficial touch or pressure. On deep pressure, pain was elicited in this region. Not sensitive to percussion. Pain on pressure and percussion distributed over the entire occiput. Discharge foul and offensive. Whitish masses could be seen in the attic. Caloric reaction, positive. Cochlea intact. Urged immediate operation which was done the following day.

Operative Findings—Large pneumatic mastoid which was carious; small amount of epithelial debris in the attic, dura uncovered by caries in the region of the temporal lobe the size of a twenty-five cent piece, dura apparently healthy. Thiersch grafts applied over the whole cavity, wound closed. Two days following operation there was a sudden rise of temperature to 103.50. The following morning the temperature was normal and continued so. The dressings were changed on the fourth day. Every graft adherent, cavity in perfect condition, very satisfactory in every particular. Dressings changed in two days. The cavity was almost entirely re-epidermized in the course of three weeks from the time she was operated. The patient was so free from discomfort of every kind that on a Sunday she went on a picnic, saying to her friends that she did not know when she had felt so well, free from all discomfort.

During this Sunday night she woke her husband, saying that she did not feel well, that something was wrong but could not say just what it was and did not get up for breakfast. About 10 a. m. she discovered that her right arm and leg were paralyzed (left ear operated). I was notified and saw the patient about 6 p. m. Could not talk, face, arm and leg paralyzed on the opposite side, no temperature. No particular pain in head. No nystagmus or vertigo. Canals and cochlea intact.

Diagnosis—Brain abscess of the temporosphenoidal lobe. My reasons for this were as follows: left ear operated, brain abscess situated in the temporosphenoidal lobe of this side would produce a paralysis of the face, arm and leg, would also paralyze the speech center which is situated on this side in right-handed people. There was no temperature, but this is frequently so. Dr. Milton Lennon was called in consultation. There was no question to be thought of other than brain abscess when we take into consideration the intense pain the patient had prior to operation, that this pain had suddenly ceased and then returned prior to operation, again subsiding. Three weeks following, the patient was found with the conditions before described. My reasoning was that the abscess began to form when she first had her intense headache in the region of the temporosphenoidal lobe, that it had taken on renewed activity when she had her second attack of intense pain in the occiput and that this abscess had ruptured during the night. The patient was sent to the hospital and operated the following morning.

Operative Findings—The dura that was uncovered by caries was somewhat reddened following the removal of the new epidermis. The dura beyond the healthy bone was normal in appearance. The amount of dura that was uncovered was considerably larger than a silver dollar. The dura was then incised from one side of the bony wall to the other, a knife inserted to the depth of one and one-half inches more or less and drawn out sidewise; no pus followed. This was repeated six different times in different places with a negative finding. Drainage tube covered with gauze inserted to the depth of one and one-half inches, wound dressed with iodoform gauze, patient returned to bed in good condition.

Conclusions—Abscess present but not found, when the drainage tube is removed on the second day, the pus will follow its removal.

First day following operation, patient can speak some, the facial paralysis is not so complete, no temperature or discomfort, arm and leg paralyzed.

Second day, can speak better, facial paralysis about same. Drainage tube removed, no pus followed, no temperature. Wound closed.

Conclusions—Must have been an embolus and of non-septic origin.

Third day, speaks well, no temperature, patient comfortable. Wassermann reaction negative.

The wound was dressed on alternating days. The patient continued to improve. First she began to move the toes and fingers, then the whole leg and finally the arm. The arm has not entirely recovered, that is, the movements are not so complete as they were before she was operated. Her hearing is much impaired on the operated side because the labyrinth is covered by a mass of cicatricial tissue, this could be removed by further operative procedure.

Deductions—From such a history, I cannot see my way clear to do anything other than was done, because of the fact that delays in acute brain surgery always mean death.

It is quite unusual for an embolus to appear in one so young, again it is almost unheard of for an embolus to appear during the course of a healing mastoid without complications. The lack of temperature is not of sufficient moment to make one hesitate in the least, so if I were confronted with the identical condition again, I would have to do as I did before.

The fact that this patient recovered from the operative procedures, should establish with all of us, how much can be done and at the same time recovery take place, where serious damage has not been done by previous disease.

I will say again and wish to impress it upon you, that if you hope to do good by cerebral operations, they must be done almost before a diagnosis can be made, as by opening a healthy brain, you are not likely to cause death and by delay in abscess formation, death is inevitable.

Discussion.

Dr. Wm. F. Blake, San Francisco: I think we are lacking in authority to make the statement that one can have recurring or rather a lighting up of a brain abscess without some temperature. Dr. Welty has remarked that in this case there was probably present an embolus. For such a blocking of a blood vessel to have occurred, there must have been present either an endocarditis or some lesion of the vascular system, and if an examination of

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

the arteries and an estimation of the blood pressure had been made, some additional evidence would certainly have been found to aid in the diagnosis.

Dr. Cullen F. Welty, San Francisco: Of course, this is all very nice after the case is over with. As to the differential diagnosis between embolus, thrombus, hemorrhage, or if you please, an acute edema, I will rely on the internist to decide that better than I can. But when you are suddenly confronted with the following condition, complete asphasia, complete paralysis of the arm and leg of the opposite side (regardless of temperature), it is your imperative duty to operate and to do it at once. Such a cerebral condition would not develop once in a thousand cases. In reply to Dr. Horn that the case was of luetic origin, I can dismiss with the following, she had a negative Wassermann, no symptoms of lues, furthermore, the manifestations of lues do not come on so suddenly. Finally, the paralysis entirely disappeared, she was moving the leg and was beginning to move the arm. Up to this time she had not had iodide or anything like it and she would have recovered just the same without it. If I had a case like it again I would do the identical thing I did; because, I say, such a condition as this you would not find in a thousand cases of brain complications associated with mastoids.

SOCIETY REPORTS

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of May, 1912, the following meetings were held:

Section on Medicine, May 7, 1912.

1. Some Conditions Commonly Called Rheumatism. Dr. C. C. Crane.
2. Relation of Bodily Poise to Pain, Especially to Backache. Dr. Samuel J. Hunkin.

Exhibition of Cases.

Discussed by Drs. H. Brunn, J. W. Shields, J. T. Watkins, G. J. McChesney, A. L. Fisher, Adelaide Brown, G. C. Macdonald, L. W. Allen and S. J. Hunkin.

Regular Meeting, May 14, 1912.

1. The Treatment of Alcoholism. Dr. R. E. Bering. Discussed by Drs. H. C. McClenahan, A. W. Hoisholt, J. W. Shiels and R. E. Bering.
2. The Dream-State of Delirium Tremens and the Inadequacy of the California Statutes in not covering certain conditions of irresponsibility for crime, exemplified in an interesting case. Dr. A. W. Hoisholt. Discussion opened by Hon. F. J. Murasky, Judge of the Superior Court.

Section on Surgery, May 21, 1912.

1. Chronic Intestinal Stasis. (W. Arbuthnot Lane) Dr. James Eaves.
2. Medical Side of Habitual Constipation. Dr. Emile Schmoll. Discussed by Drs. J. W. Shiels, R. Russ, G. J. Sweeney, J. Eaves and E. Schmoll.

Eye, Ear, Nose and Throat Section, May 28, 1912.

1. Presentation of Case of Fibroma of Larynx. Dr. L. Eloesser.
2. Some Unusual Foreign Bodies in Frontal Sinus and External Auditory Meatus. Dr. P. de Obarrio. Discussed by Dr. H. B. Graham.
3. Barany's Investigation on Localization in the Cerebellum. Dr. Kaspar Pischel. Discussed by Drs. H. Horn, H. B. Graham and W. F. Schaller.
4. Salvarsan Treatment of Syphilis in Children. Dr. H. H. Yerington. Discussed by Drs. K. Pischel, S. O. Beasley, L. Porter, W. F. Schaller and W. F. Blake.
5. Report of four cases. Dr. H. B. Graham.

THE CALIFORNIA ACADEMY OF MEDICINE.

The California Academy of Medicine held its regular meeting on May 27, 1912, in the library of the County Medical Society. The following scientific program was given:

Stereoroentgenography in Pulmonary Tuberculosis. (A Clinical and Anatomical Study.) Dr. Walter N. Boardman.

Refreshments were served at the close of the meeting.

DEPARTMENT OF PHARMACY AND CHEMISTRY.

Edited by FRED I. LACKENBACH.

State Poison Law—Official Antidotes.

In accordance with "An Act to regulate the sale and use of poisons in the State of California," the following antidotes have been adopted by the State Board of Pharmacy and are required to appear on labels affixed to packages containing such poisons. Prescriptions of regularly licensed practitioners of medicine are exempt from this ruling:

In the circular containing these regulations sent to licensed pharmacists throughout the state, the following advice is offered: "In all cases of poisoning, a physician should be summoned at once. When a physician is at hand, the most prompt emetic and one most easily administered is one-tenth grain apomorphin hypodermically."

ACID, ARSENOUS (ARSENIC): Emetic of mustard; hydrated oxide of iron a cupful; follow with olive oil or white of eggs; mucilaginous drinks. Laudanum (20 drops) if much pain.

ACID, CARBOLIC: Dilute alcohol or whisky. Albuminous substances—milk, white of eggs, etc.

ACID, HYDROCYANIC: Cold water to head and spine. Give stimulants. Inhalation of ammonia. Artificial respiration.

ACIDS, MURIATIC, NITRIC, NITRO-MURIATIC, SULPHURIC: Give no emetics. Give at once large draughts of water or milk. Soft soap, or soap and water, or white of eggs beaten up with water, or olive oil.

ACID, OXALIC: Give chalk or whiting (a tablespoonful), or plaster off the wall, suspended in water. Emetic of mustard; large draughts of warm water; olive oil; mucilaginous drinks. Stimulants—whisky, etc. Apply warmth to extremities.

ACONITE, ITS PREPARATIONS OR DERIVATIVES: Emetic of mustard, follow with large draughts of warm water; then strong tea, coffee or whisky. Keep patient in horizontal position. Keep up artificial respiration.

ANTIMONY, AND ITS PREPARATIONS (TARTAR EMETIC): Give emetics of mustard or zinc sulphate. Milk; white of eggs freely mixed with water; demulcent drinks.

ANTISEPTIC TABLETS (CORROSIVE SUBLIMATE—BICHLORIDE OF MERCURY): Give white of eggs; flour or starch mixed with water; emetic of mustard. Strong tea; coffee; whisky. Demulcent drinks if necessary.

BELLADONNA, ITS PREPARATIONS OR DERIVATIVES: Emetic of mustard, followed by large draughts of warm water; then strong tea or coffee. Arouse patient and keep him in motion.

BROMINE: If inhalation—Fresh air; inhalation of ammonia. If swallowed—Emetic. Starch, followed by magnesia; bicarbonate of soda; white of eggs; milk; flour and water.

CANTHARIDES: Avoid oils. Emetics first of all Demulcents. Stimulants. Employ artificial heat externally.

CHLORAL HYDRATE: Horizontal position. Cold water to head. Stimulants. Emetic of mustard.

CHLOROFORM: Horizontal position. Cold water to head. Stimulants. Emetic of mustard.

COCCULUS INDICUS: Emetic of mustard, followed by large draughts of warm water. Give powdered charcoal. To relieve spasms let patient inhale pure chloroform or give chloral hydrate (25 grains).

CONIUM: Emetic of mustard, followed by large

draughts of warm water; then strong tea or coffee. Arouse patient and keep him in motion.

COTTON ROOT AND ITS PREPARATIONS: Emetic of mustard, followed by large draughts of warm water. Strong tea or coffee. Stimulants (whisky, etc.) freely. Keep patient in horizontal position. Employ warmth and friction to extremities. Artificial respiration.

COWHAGE: Large doses of olive oil.

CREOSOTE: Emetic of mustard. White of eggs beaten up with water. Olive oil; magnesia. Stimulants (whisky, etc.) freely. Keep patient in horizontal position. Employ warmth and friction to the extremities.

CROTON OIL: Give white of eggs, or flour mixed with water. Emetic of mustard. Strong tea or coffee. Stimulants (whisky, etc.) . Demulcent drinks if necessary.

CYANIDE OF POTASSIUM: As for Acid, Hydrocyanic.

DIGITALIS, ITS PREPARATIONS AND DERIVATIVES: Emetic of mustard, followed with large draughts of warm water. Strong tea or coffee. Stimulants (whisky, etc.) freely. Keep patient in horizontal position. Apply warmth and friction to the extremities. Artificial respiration.

ETHER (Swallowed). As for Chloroform.

FORMALIN OR SOLUTION OF FORMALDEHYDE: Ammonia in dilute solutions. Demulcent drinks. Inhalations of ammonia.

FOWLER'S SOLUTION. As for Arsenic.

GELSEMIUM: Coffee; brandy; emetic of ipecac.

HYOSCYAMUS, ITS PREPARATIONS OR DERIVATIVES: Emetic of mustard, followed by large draughts of warm water; then strong tea or coffee. Arouse patient and keep him in motion.

INDIAN HEMP (CANNABIS INDICA): Emetic of mustard, followed by large draughts of warm water; then strong tea or coffee. Arouse patient and keep him in motion.

IODIN, AND ITS PREPARATIONS: Give starch; white of eggs, or flour mixed with water. Emetic of mustard. Strong tea or coffee; whisky or other stimulants. Demulcent drinks if necessary.

LYSOL: Dilute alcohol or whisky. Albuminous substances—milk, white of eggs, etc.

NITRO-GLYCERIN: Cold to head. Horizontal position. Give emetics and cathartics. Ergot.

NUX VOMICA, ITS PREPARATIONS OR DERIVATIVES: Emetic of mustard, followed by large draughts of warm water. Give powdered charcoal. To relieve spasms let patient inhale pure chloroform, or give chloral hydrate (25 grains).

OIL OF BITTER ALMONDS, ESSENTIAL: As for Acid, Hydrocyanic.

PHOSPHORUS, AND ITS POISONOUS DERIVATIVES: Emetic of mustard, or blue vitrol (3 grains) every five minutes until vomiting occurs. A teaspoonful of old thick oil of turpentine (avoid other oils); also epsom salts, half ounce in tumblerful of water.

PENNYROYAL, OIL OF: Give white of eggs, or flour mixed with water. Emetic of mustard. Strong tea or coffee; stimulants (whisky, etc.). Demulcent drinks if required.

RED AND WHITE PRECIPITATE: As for Antiseptic Tablets.

OIL OF RUE; OIL OF SAVIN; OIL OF TANSY: As for Oil of Pennyroyal.

SANTONIN: Evacuate stomach; use stimulants and emetics.

STROPHANTHUS AND ITS PREPARATIONS: Give zinc sulphate and mustard as emetics. Tannic acid. Stimulants (brandy or whisky). Epsom salts.

STRYCHNINE: As for Nux Vomica.

SUGAR OF LEAD: Give epsom salts (one-half ounce) dissolved in a tumbler of water. Emetic of mustard; follow with large draughts of warm water. Milk; demulcent drinks.

VERATRUM VIRIDE, PREPARATIONS AND DERIVATIVES: Emetic of mustard; follow with large draughts of warm water. Strong tea or coffee; stimulants (whisky, etc.) freely. Keep patient in horizontal position. Apply warmth to the extremities. Artificial respiration.

WOOD ALCOHOL: Give warm water and salt (two tablespoonfuls to a tumblerful) immediately; repeat at short intervals. Stimulate the respiratory movement. Give strong coffee.

YELLOW JASMINE: Coffee; brandy; emetic of ipecac or mustard.

ZINC SULPHATE: Give white of eggs; flour mixed with water. Baking or washing soda. Emetic of mustard. Strong tea or coffee; stimulants (whisky, etc.). Demulcent drinks if required.

Suitable demulcent drinks are: Flaxseed tea; slippery elm tea; barley water; thin starch water; milk; white of eggs with water.

No antidotes are given for morphin, codein, heroin, opium, cocain and their salts, compounds or preparations, as their sale is prohibited except on prescription of a duly licensed physician, dentist or veterinary surgeon. The latter is not permitted to prescribe narcotic drugs for human beings, and must name animal prescribed for.

Prescriptions containing more than 8 grs. opium, 1 gr. morphin, 2 grs. codein, one-half gr. heroin, 1 gr. cocain, 1 gr. alpha eucain, 1 gr. beta eucain, 1 gr. novocain, or 60 grs. chloral hydrate, to each fluid or avoirdupois ounce, **cannot be repeated without the written order of the prescriber.**

"No copy or duplicate of any narcotic prescription shall be given, and the original shall be kept on file for inspection for at least three years."

Patient's name and the date must be written by the prescriber on all prescriptions for narcotic drugs.

BOOK REVIEWS

A Treatise on Tumors. By Arthur F. Hertzler. 4to. Cloth., pp. 725. Illustrated. Published by Lea & Febiger, Philadelphia, 1912. Price, $7.00.

This treatise aims to combine in one volume the pathological and the clinical aspects of tumors. It has three sections: General Biology, Special Pathology, and Regional Consideration of Tumors. The chapter on General Biology is very scanty. The biochemistry of tumors is not touched upon at all. The results of the work of Bashford, of Ehrlich and his school, and of the Buffalo laboratories on tumor-growth and immunity are not mentioned. The author's statement that the "vast field of experimental oncology has been entirely omitted because . . . its results would but confuse the student and practitioner" will scarcely pass uncontested. The section on Special Pathology gives a good brief oversight of the histology of tumors. The clinical section is perhaps the best; it contains some good clinical descriptions and is well illustrated. On the whole, however, it is difficult to see the need for the book. It offers little that is not already to be found in the ordinary text-books of pathology and of surgery, and it is improbable that the student or practitioner for whom it is intended will feel warranted in the purchase of a large volume which merely duplicates the contents of his old and well-conned standbys. The book is well printed. The good photographs of the third section may make it useful for purposes of clinical instruction.

L. E.

Retinoscopy. By James Thorington, A. M., M. D. Published by P. Blakinson's Son & Co. Sixth edition. 1911. Price, $1.00.

This little book fulfills its mission in the simplest words possible. It tells one where to look and what to look for at every step in

retinoscopy. The style of the book is such that the reader remembers every direction given.

E. D. D.

Duodenal Ulcer. By B. G. A. Moynihan. Second edition, pp. 486; illustrated; cloth. W. B. Saunders & Co., Philadelphia and London, Publishers. Price, $5.00.

In this second edition the size of the book has been increased from 379 to 486 pages, 115 new case histories and 15 illustrations have been added. The most important changes concern the chapters on Symptoms and Diagnosis and Differential Diagnosis. The brilliant investigations of Hertz on the sensibility of the alimentary canal have thrown light on much that was dark in the symptomatology of duodenal ulcer and have permitted of a satisfactory interpretation of the "hunger pains"—a phenomenon which at the printing of the first edition was still inexplicable. A discussion of X-Ray findings and the reproduction of X-Ray plates in subsequent editions would still further add to the interest of this classical monograph.

L. E.

Health and Medical Inspection of School Children. By Walter S. Cornell, M. D., Director of Medical Inspection of Public Schools, Philadelphia. Published by F. A. Davis Co., Philadelphia. 1912.

The possibilities of medical inspection in the public schools and its close relation to every sociologic problem are borne in on the reader as page after page of this fascinating book is turned. Excellent original illustrations emphasize the text, and throughout the note of conclusion from personal experience is sounded. The book is one to recommend itself to teachers, parents, and citizens who are interested in having the pupils in our public schools given every chance to secure and maintain trained minds in sound bodies as assets for future usefulness to themselves and the state. Actual facts as to the principles underlying proper school inspection, its costs, limitations, the amount each inspector can be expected to cover, and the qualifications of the inspectors will elucidate the demands of the situation to Boards of Health. All in all, the book is pertinent at this time and is a valuable contribution to preventive medicine.

A. B.

The Treatment of Shortsight. By Professor D. J. Hirschberg, Berlin. Translated by G. Lindsay John, M. D., F. R. C. S. Published by Rebman Co. 1912. Price, $1.25.

This monograph on Short Sight covers the ground exhaustively. It is the author's conclusions of his life work. For the student and younger men it comes as a boon to point out the dangers and pitfalls encountered in correcting myopia. It teaches the principles of treatment as no text-book can, carrying the reader through myopia; its complications and treatment and ending with words of wisdom on the preservation of the myopes sight in school children and future generations. The book is within reach of all and satisfied patients will amply repay the reader for the time spent with it.

E. D. D.

AN OMISSION.

In the June Journal, under "Members Registered at Del Monte Meeting," page 239, Dr. Anne W. Williams', of Hayward, name should have appeared but unfortunately was omitted.

CHANGES.

Clark, Wm. A., from Claremont Manor, Oakland, to Oakland Bank of Savings Bldg., Oakland.

Miller, B. F., from San Diego to Whittier, Cal.

Kronenberg, H., from 135 Stockton St., San Francisco, to 166 Geary St., San Francisco.

Gallagher, J. J., from 111 Ellis St., San Francisco, to 166 Geary St., San Francisco.

Briggs, Le Roy, from Oakland to 240 Stockton St., San Francisco.

McKibbon, R. E., from Napa to 433 W. 46th St., Los Angeles, Cal.

Gavey, Walter, from Kennett to Red Bluff, Cal.

Mackechnie, C. A., 981 Florida St., San Francisco, to 130 Giraud St., San Bruno, Cal.

Hartwell, Robt. W., from San Francisco to Tuolumne, Cal.

Barry, Ray Kent, from Sunnyside, Cal., to Turlock, Cal.

Bricca, C. R., from 135 Stockton St., to 166 Geary St., San Francisco.

Linebaugh, Jno. A., from La Porte to Alleghany, Cal.

Clayton, Wm. A., from Alleghany to Palo Alto, Cal.

Hyde, Lawrence, from addresses unknown to Visalia.

O'Neal, Robt. McW., from San Francisco to Tonopah, Nev.

Derbyshire, A. L., from 734 Twenty-fourth St., San Diego, to Timken Bldg., San Diego.

Sherry, Henry, from Stanton Bldg., Pasadena, to 461 East Colorado St., Pasadena.

Spiro, Harry, from 1629 Sutter St., San Francisco, to 740 Hyde St., San Francisco.

Rea, C. T., from San Francisco to 1525 Clay St., Oakland, Cal.

Rosenkranz, H. A., from Illinois to Anglo-American Medical Assn., 105 Friedrichstrasse, Berlin.

Shannan, Jas. W., from 2104 University Ave., San Diego, to 1313 D St., San Diego, Cal.

Evans, C. W., from 2121 E. First St., Los Angeles, to First and Cummings Sts., Los Angeles.

Laughlin, C. B., from Balls Ferry, Shasta Co., to address unknown.

Cushman, R. A., from Fullerton to Santa Ana, Cal.

Pascoe, M. W., from Los Angeles to Taft, Cal.

Dolman, P., from Germany to 312 N. Thirty-third St., Philadelphia, Pa.

Huntoon, A. F., from San Fernando Bldg., Los Angeles, to Fourth and Main Sts., Los Angeles.

Huntoon, H. A., from 1029 W. 56th St., Los Angeles, to 5421 S. Vermont Ave., Los Angeles.

La Fontaine, E. C., from 2970 California St., San Francisco, to 1211 Polk St., San Francisco.

Gottlieb, A., from 381 Bush St., San Francisco, to 1201 O'Farrell St., San Francisco.

Crosby, D., from 14th and Fruitvale Ave., Fruitvale, to 1701 Fruitvale Ave., Fruitvale, Cal.

Wagner, Henry W., from 1012 Eighth St., Sacramento, to 2011 Twenty-first St., Sacramento.

NEW MEMBERS.

Currie, A. Harlan, Riverside, Cal.
Nahl, C. A., Sacramento, Cal.
Foster, G. A., Sacramento, Cal.
Wallace, C. T., Eureka, Cal.
Watters, H. G., Watsonville, Cal.
Boland, A. E., Needles, Cal.
Downing, E. D., San Francisco, Cal.
Gottlieb, A. J., San Francisco, Cal.
Brown, A. L., Riverside, Cal.
Baird, H. R., Nicolaus, Cal.
Derbyshire, A. L., San Diego, Cal.
Gallison, F. E., Merced Falls, Cal.
McClelland, J. L., Los Banos, Cal.
Reed, Elgar (not Edgar) as appeared in June issue, Chino, Cal.

DEATHS.

Elliott, C. C., Soldiers' Home, Los Angeles, Cal.
Hannan, W. F., Colfax, Cal.
Adams, Z. T., La Grange, Cal.
Shorb, A. S., Los Angeles, Cal.
Rowell, Chester, Fresno, Cal.
MacMonagle, B., San Francisco, Cal. (Died in Paris, France.)
Briggs, Elmer E., Santa Rosa, Cal.